



**United Nations Development Programmes**

**Project Document template for projects  
financed by the various GEF Trust Funds**




<b>Project title: Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits</b>		
<b>Country:</b> Armenia	<b>Implementing Partner (GEF Executing Entity):</b> Ministry of Environment of the Republic of Armenia	<b>Execution Modality:</b> Full National Implementation (full NIM)
<b>Contributing Outcome: UNSDCF Outcome 5: Ecosystems are managed sustainably and people benefit from participatory and resilient development and climate-smart solutions</b>		
<b>UNDP Social and Environmental Screening Category:</b> <i>Moderate</i>		<b>UNDP Gender Marker:</b> 2
<b>Quantum Award ID:</b> 1145260		<b>Quantum Project ID:</b> 00123413
<b>UNDP-GEF PIMS ID number:</b> 6586		<b>GEF Project ID number:</b> 10854
<b>LPAC meeting date:</b> 07 June 2023		
<b>Last possible date to submit to GEF:</b> 10 December 2022		
<b>Latest possible CEO endorsement date:</b> 10 June 2023		
<b>Project duration in months:</b> 60 months		
<b>Planned start date:</b> 15 November 2023		<b>Planned end date:</b> 15 November 2028
<b>Expected date of Mid-Term Review:</b> 15 May 2026		<b>Expected date of Terminal evaluation:</b> 15 August 2028
<b>Brief project description:</b> The objective of the project is to promote Land Degradation Neutrality (LDN), restore and improve the use of land and water resources in Armenia’s Lake Sevan Basin to enhance the sustainability and resilience of livelihoods, biodiversity and globally significant ecosystems. This will be achieved through a multifocal strategy that includes five interrelated components, aligned with the government’s efforts to prioritize policies and strengthen technical capacities for the improved management of Lake Sevan basin. The project will support the promotion of LDN compatible models of non-depleting farming agriculture practices in the Lake Sevan basin landscape that will also reduce/eliminate diffuse sources of pollution from agriculture in the lake and associated river system, at the same time allowing for effective conservation of critical ecosystem services within and outside the Lake Sevan National Park. The expected results of the project revolve around the Land Degradation Neutrality targets set at two province level in Gegharkunik and Vayots Dzor, implemented demonstratively through integrated spatial and land use planning (ISLUPs) in six merger/enlarged communities, expected to be scaled up to the entire Lake Sevan basin, through leveraged partnerships and investments into nature positive agriculture practices. Improved land use management will directly contribute to secured biodiversity status in Lake Sevan basin. First, at Sevan National Park, covering 147,456 ha of significant biodiversity, expected to be strengthened through the		

project's support to improving the park's staff capacities and community outreach, work together with other donor funded land use management will directly contribute to secured biodiversity status in Lake Sevan basin. First, at Sevan National Park, covering 147,456 ha of significant biodiversity, expected to be strengthened through the project's support to improving the park's staff capacities and community outreach, work together with other donor funded projects and development partners. Secondly, Key Biodiversity Areas (KBAs) and Important Bird and Biodiversity Areas (IBAs) located outside the Lake Sevan National Park will be mapped and their spatial requirements mainstreamed in the land use planning. Nature positive agricultural practices will be promoted around these KBAs/IBAs covering approximately 165,800 ha, that are expected to support the ecological functionality of ecosystems to protect complex landscapes and link isolated biodiversity hotspots. The project will place a central focus on local communities, directly benefiting some 68,000 people, incentivizing them away from destructive agriculture and poaching and towards supporting ecosystem connectivity and wildlife migration eco-corridors, promoting eco-tourism and valorization of Sevan Ramsar area.

### FINANCING PLAN

GEF Trust Fund grant	USD 3,598,631
UNDP TRAC resources	USD 100,000
Confirmed cash co-financing to be administered by UNDP	USD 3,698,631
<b>(1) Total Budget administered by UNDP</b>	<b>USD 3,698,631</b>
<b>(2) Total confirmed co-financing to this project not administered by UNDP</b>	<b>USD 29,601,763</b>
<b>(3) Grand-Total Project Financing (1) +(2)</b>	<b>USD 33,300,394</b>

### SIGNATURES:

<p>Signature: </p> <p><b>Mr. Hakob Simidyan</b> Minister of Environment of the Republic of Armenia</p>	<p>Agreed by Government Development Coordination Authority</p>	<p><u>15.11.2023</u> Date/Month/Year: <i>within 6 months of GEF CEO endorsement</i></p>
<p>Signature: </p> <p><b>Mr. Hakob Simidyan</b> Minister of Environment of the Republic of Armenia</p>	<p>Agreed by Implementing Partner</p>	<p><u>15.11.2023</u> Date/Month/Year: <i>within 6 months of GEF CEO endorsement</i></p>
<p>Signature: </p> <p><b>Ms. Natia Natsvlshvili</b> UNDP Resident Representative in Armenia</p>	<p>Agreed by UNDP</p>	<p><u>15.11.2023</u> Date/Month/Year: <i>within 6 months of GEF CEO endorsement</i></p>

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### List of acronyms

AF	Adaptation Fund
BPPS	Bureau for Policy and Programme Support
CBD	Convention on Biological Diversity
CPD	Country Programme Document (UNDP)
EO	Earth Observation
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization (of the United Nations)
FSP	Full Size Project
GDP	Gross Domestic Product
GEB	Global Environmental Benefits
GEF	Global Environmental Facility
GEF SEC	Global Environment Facility Secretariat
GII	Gender Inequality Index
GIS	Geographical Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPS	Global Positioning System
HDI	Human Development Index
IBAs	Important Bird and Biodiversity Areas
IRH	Istanbul Regional Hub
ISLUP	Integrated Spatial and Land Use Plan
IWRM	Integrated Water Resources Management
Roi	Return of Investment
KBAs	Key Biodiversity Areas
LCC	Land Cover Change
LCML	Land Cover Meta Language
LDN	Land Degradation Neutrality
MAEP	Ministry of Agriculture and Environment Protection
METT	Management Effectiveness Tracking Tool (METT/GEF)
M&E	Monitoring and Evaluation
NDVI	Normalized Difference Vegetation Index
NPP	Net Primary Productivity
PAs	Protected Areas
PIF	Project Identification Form
PIR	GEF Project Implementation Report
POPP	Programme and Operations Policies and Procedures
PUEAs/PUCs	Pasture Users Associations/ Pasture Users Cooperatives
RTA	Regional Technical Advisor
SES	Social and Environmental Safeguards
SESA	Strategic Environmental and Social Assessment
SESP	Social and Environmental Screening Procedure (UNDP)
SLM	Sustainable Land Management
SOC	Soil Organic Carbon
SRM	Stakeholder Response Mechanism
STAP	GEF Scientific Technical Advisory Panel
SLM	Sustainable Land Management
UNDP	United Nations Development Programme
UNCCD	UN Convention to Combat Desertification
UNFCCC	UN Framework Convention on Climate Change
UNECE	United Nations Economic Commission for Europe
WB	World Bank
WUAs	Water Users Associations
WWF	World Wide Fund for Nature



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## II. DEVELOPMENT CHALLENGE

### Overall development context and challenge (socio-economic, sustainable development)

1. The Republic of Armenia, an upper middle-income country<sup>1</sup> with an area of 29,743 km<sup>2</sup> divided into 10 provinces and Yerevan (the capital city) is bordered by Azerbaijan to the east and southwest, Georgia to the north, Iran to the south and Turkey to the west. It has a population of 2,963 million, set on a declining demographic trend, and a large diaspora of up to 10 million. The annual average migration rate of 24,000 is caused by poverty, unemployment, lack of decent work opportunities and social inclusions. Rural women, who carry out most of the unpaid work, including family farming, are particularly affected by labour migration patterns (usually of men) that leaves them under a higher exposure rate of economic distress.

2. The overall trend in Armenia's economic development before the COVID-19 pandemic, has been positive with a high economic growth rate, a steady increase in exports, decreasing unemployment and increasing GDP per capita in most regions. Following robust growth in the past three years, which continued also in the first two months of 2020, the situation changed after the COVID-19 pandemic. According to the publications of the National Statistical Committee of Republic of Armenia, the GDP in 2020 decreased by about 5.8% compared with the GDP in 2019. It is an undeniable fact that agriculture in Armenia is the most important sector for the rural environment and in terms of contribution to the country's Gross Domestic Product (GDP). However, aligned with the overall decreasing trend of the GDP, the gross agricultural production value decreased as well by 4% in 2020 compared to 2019. Overall in 2020 the Gross Agricultural Output (GAO) amounted to 1.675 million dollars with crop production up to 47% and animal husbandry 53%. Remittances are on a descendent trend compared to past years, after constituting 11% of the GDP (2019). Nevertheless, they remain an important income generation source. Armenia belongs to the high human development category<sup>2</sup> due to its Human Development Index (HDI) score of 0.760. Despite an increase in HDI of more than 20% since 1991, 26.4 % of the population still lived below the poverty line in 2019,<sup>3</sup> with 2.7 % classified as vulnerable to multidimensional poverty.<sup>4</sup> Disparities between urban and rural areas, gender inequality, outward migration, high climate change exposure and natural resources degradation further impact the country's resilience and economic competitiveness.

3. The climate change and decrease of precipitation will further negatively impact the economic productivity. Over the past century the average annual temperature has risen by 1.23 degrees Celsius, and the average annual precipitation has decreased by 9%. The irregularity of the spatial distribution of precipitation and the intensity of extreme weather events have increased. Drought periods in the past decade are starting earlier in the year and have increased in length by approximately 30 days, whereas the upper boundary of the drought zone has expanded, including mountainous areas. The annual temperature is predicted to increase by up to 1.6 degrees Celsius by 2040, by 3.3 degrees Celsius by 2070 and by 4.7 degrees Celsius by 2100, relative to the baseline annual average (5.5 degrees Celsius) for 1961-1990. The precipitations will decline by up to 2.7% by 2040, 5.4% by 2070, and 8.3 % by 2100, relative to the baseline annual average (592mm) for 1961-1990. The projected climate changes by 2050 include: (i) An increase in average annual temperature of 1.6°C to 2.2°C; (ii) An increase in the number of "hot" days and nights and a decrease in the number of "cold" days and nights; (iii) Inconsistent changes in average annual precipitation, but likely reductions of -7 to -10% in monthly average precipitation June to September; (iv) An increase in the number of consecutive dry days by 7 to 11 percent; (v) An increase in extreme rainfall days by 22 to 32 percent.<sup>5</sup> The climate change will have negative effects on the country's water availability, energy, agriculture, tourism, ecosystems and human health. By way of illustration, the estimated annual economic losses in the agriculture sector driven by drought, hail, floods, spring frosts and mudflows has been estimated at about 15-30 billion AMD for the recent years.<sup>6</sup>

4. These pre-existing inequalities and vulnerabilities were further amplified by the COVID-19 pandemic, resulting in extensive disruption of businesses, income insecurity/loss and the deterioration of people's health and well-being, disproportionately affecting women, children, youth, older persons, persons with disabilities,

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<sup>1</sup> <https://data.worldbank.org/?locations=XT-AM>

<sup>2</sup> <http://www.hdr.undp.org/en/countries/profiles/ARM>

<sup>3</sup> <https://www.armstat.am/en/?nid=82&id=2323>

<sup>4</sup> [http://hdr.undp.org/sites/all/themes/hdr\\_theme/country-notes/ARM.pdf](http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/ARM.pdf)

<sup>5</sup> USAID, Armenia Climate Risk Profile

<sup>6</sup> Fourth National Communication to UNFCCC

people living in poverty, labour migrants, informal workers, entrepreneurs, and remittance-dependent households. The 2020 large-scale military hostilities in the Nagorno-Karabakh conflict area (bordering Azerbaijan) caused a massive displacement from Nagorno-Karabakh to Armenia. Among an estimated 90,000 displaced people, 88 % were women and children who were housed in host communities and collective shelters. Despite the Armenia-Azerbaijan cease fire agreement (November 2020) there are lingering tensions. Amidst the volatility of the political context, President Sarkissian resigned on 23 January 2022, citing the presidency's lack of constitutional power<sup>7</sup>, leaving behind a divided political climate plagued by lingering tensions between the ruling party and opposition which have slowed strategic political ownership of development initiatives, decision making process and progress towards the SDGs.

5. These multiple shocks have negatively impacted growth and productivity. The GDP declined by 7.4% in 2020, followed by a 4.2.% growth in 2021 (Armenia Central Bank). Yet, much of the growth was driven by import-dependent consumption and investment, while the slowdown in agricultural and industrial sectors continued. Agriculture is one of the most important sectors of the economy employing about 30% of the workforce. Private sector and international organizations are improving the agro-processing industry and the government is making efforts to diversify production. Agriculture employment fell from 44.69% in 1991 to 24.05% in 2019 and there is evidence of a transfer of employment from agriculture to non-agriculture sector.

6. Agriculture is one of the leading sectors of economy in the Lake Sevan Basin (12.7%)<sup>8</sup> there are 3341 small and medium size companies in Gegharkunik and 1492 in Vayots Dzor regions and approximately 65% of the micro-enterprises are family businesses. The Agricultural Census reports 345,875 farms with an average of 1.5 ha of agricultural land. Eighty percent of these farms have less than 2 ha. Only 1% of farms have more than 10 ha, and these farms account for 15% of agricultural land use. Traditional, mixed crop and livestock production systems predominate, with most land used for dryland cereal production for own consumption and livestock feed. Households' small herd of cattle and sheep provides milk and meat for own consumption and some cash income, supplemented by cash income from fruit and vegetables. The use of modern technology is low, with low consequent crop and livestock productivity. Livestock breeding is predominant in the targeted regions, covering more than 90% of the rural areas, with most developed directions being dairy and meat products, followed by pig, sheep breeding and poultry farming. The majority of local businesses are small and medium size enterprises engaged in milk and dairy products, honey and dried fruits processing. In Gegharkunik region there are active small and medium size fishing enterprises and fish processing units.

7. Despite its potential, the Armenian agriculture sector is largely driven by increased productivity of semi-subsistence farms rather than a widespread adoption of improved technology and a shift to modern agriculture. Participation in agriculture cooperative structure is not widespread and the level of their performance is not satisfactory for the general agricultural sector. Most of the cooperative structures currently operating in Armenia were established through donor support programmes without a clear market or operational objective. Most of the members joined cooperatives only because of a short-term opportunity to receive some tangible or intangible assets from donors. As a result, there are several cooperatives that own some processing or post-harvest handling facilities. However, only a few have continued to successfully operate them after the end of the projects in the framework of which they were established. In general, cooperatives in Armenia are not supported by committed producers. Their market participation is occasional, and they are far from being a part of the agricultural value chain<sup>9</sup>. Accessible funding is a crucial factor for the success of the agricultural sector and for the well-being of smallholders, as it provides a number of opportunities: investing in efficient technologies and new product varieties, accessing markets, integrating into a value chain, extending the business, and much more. There is continuing disparity in economic opportunities among women and men in Armenia. Rural women usually benefit from micro-credit or loan programmes provided by donor organizations, which make these funds available on the basis of a specific level of women's involvement (quotas). However, women face difficulties in obtaining loans, partly because they lack property for collateral. Other indirect burdens are women-unfriendly business environments, mobility constraints, limited access to large markets, and the gendered dimensions of social capital (i.e. social interaction and networking) (FAO, 2017b).

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<sup>7</sup> As of 2018 Armenia transitioned from a semi-presidential to a parliamentary republic

<sup>8</sup> Sevan Basin Management Plan

<sup>9</sup> Urutyanyan, 2013a, Millns, 2013

8. After an 80% decline in 2020, the tourism sector is slowly recovering as preliminary reports have shown, with the number of tourist arrivals set to reach only one third of 2019 totals. Agriculture generates around 15% of the GDP and farming employs more than 35% of Armenia's workforce (overall) and 65% in rural areas. The agriculture sector has declined by 7% in 2020 and recovery is slow. The sector has a low productivity, due to multiple factors including limited irrigated land, inadequate land use planning and infrastructure, limited access to finance, a lack of efficient technology, vulnerability to natural hazards and underdeveloped market mechanisms. The government relief measures destined to support the most affected by the COVID-19 pandemic amounted to 367 million USD (2.6% of the GDP) providing for subsidized loans in particular for tourism and agriculture, grants to private sector, direct wage subsidies to MSMEs and strengthened social assistance measures<sup>10</sup>.

9. The war in Ukraine has a negative impact on food security at regional and global level and the effects are felt in Armenia as well, against a background of an already high poverty rate which in 2020-2021 was estimated at 27% (Armstat 2020); food security rate of 21.4% (WFP, 2021) and in Feb 2022 food inflation reached a staggering 11.4%. According to the official statistics Russia is Armenia's key supplier of wheat, maize, barley, sunflower seed oil and fertilizers among other products with key supply routes to Armenia via the Black Sea. Assuming a further increase of food price of 20% or more, overall food insecurity in Armenia is expected to increase from 21.4% to 34% or more, and the average poverty rate from 27% to 43% depending on a cumulative impact of the following factors: expected low agricultural production in Armenia (due to reduced rainfall and high fertilisers prices) as well as the effect of the hostilities on the availability of food exports from Russia; the reduced flow of remittances; the demand for Armenian goods and services; and the capacity of the Armenian Government to compensate vulnerable households for the rampant inflation (11.4% in Feb 2022). In terms of remittances, 7% of the total remittances received by Armenians is from Russia. The depreciation of the Russian Ruble and an economic recession in Russia and Ukraine will impact approximately 56,000 of the Armenian households and result in loss of employment of seasonal workers from Armenia and negative impact on their households.

#### **Environmental context**

10. Armenia is located at the junction of the biogeographic zones of the Lesser Caucasus, the Iranian and Mediterranean zones, exhibiting a great range of altitudinal variation (from 375m to the 4,095 m peak of Mt. Aragats) and a diversity of climatic zones, ranging from dry sub-tropical to cold alpine. The average annual temperature (1960-2015) is 7.6°C, varying from -8°C in the high mountains to 12 to 14°C in low valleys. Armenia's flora and fauna include many regionally endemic, relict, and rare species and the country is of particular importance as a center of endemism for wild relatives of economically important crop and livestock species. The biodiversity of Armenia is notable for its high endemism: about 500 species of fauna (about 3% of the fauna) and 144 species of flora (3.8% of total flora) are considered endemic. The country's Protected Areas System includes 3 state reserves, 4 national parks, 27 sanctuaries and 232 natural monuments and covers approximately 80,000 ha or 13% of the country's territory. A percentage of 60% of the country's flora and fauna species composition is found in the protected areas. Armenia hosts 3800 species of vascular plants, 428 species of soil and water algae, 399 species of mosses, 4207 species of fungi, 464 species of lichens, 549 species of vertebrates and about 17,200 species of invertebrates.

11. Several areas of international importance with rare, endemic, and endangered species have been identified in the regions under the project's focus. Gegharkunik region hosts the Sevan KBA/IBA (171,972 ha) nearly completely covered by the National Park Sevan (147,456 ha). The Juniper Woodland Sanctuary (3,312 ha) is included in the Sevan Ridge KBA, and it is hosting mountain meadows and critical juniper sparse forest habitat once inhabited by the Bezoar Goat (*Capra aegagrus*) but no longer spotted here due to habitat loss, agriculture encroachment and poaching. In Vayots Dzor region, the Jermuk-Yeghegis KBA/IBA includes several wildlife sanctuaries sheltering mountain ungulates: Yeghegnadzor/Yeghegis State Sanctuary (4,200 ha), Herher Open Woodland Sanctuary (6,139 ha), Jermook Forest Sanctuary (3,865 ha) and Jermook Hydrological State Sanctuary (17,370 ha). These KBAs/IBAs and wildlife sanctuaries are partially or totally nestled within the Eastern Lesser Caucasus Corridors, one of the main wildlife corridors in Caucasus Ecoregion (WWF), encompassing broadleaf and coniferous forests and subalpine-alpine meadows and shrublands habitats, preferred by the wild mountain ungulates and the Caucasian Leopard (*Pantera pardus*), their predator. Jermook area is a critically important habitat also important for the breeding populations of several important birds of prey such as the Egyptian

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<sup>10</sup> EBRD-Transition Report 2021-2022

Vulture, Bearded Vulture, Golden Eagle, Peregrine Falcon and Eagle Owl<sup>11</sup>. Gndasar KBA/IBA is located in Vayots Dzor region, on the slopes of Vardenis Mountain Ridge covered by shrublands, mountain steppe, meadows and hosts important breeding habitats of high mountain species such as Caspian Snowcock *Tetraogallus caspius*, and soaring migrants like storks and cranes. Vayots Dzor region also includes Arpa KBA and Noravank IBA, the latter located on the slopes of Vayk mountains, hosting critical riparian shrublands, steppe areas, and sparse juniper woodlands sheltering important breeding areas for the Egyptian Vulture, Short-toed Snake Eagle, Golden Eagle among others (*further description of the key biodiversity values under Annex 19*).

**12.** Armenia is one of the Palearctic hotspots of fine grain plant diversity<sup>12</sup> and several grasslands ecosystems (some of them situated within the Eastern Lesser Caucasus Corridor conservation area) were sampled in 2019 within the framework of a field mission of the Scientists of the Eurasian Dry Grassland Group's (EDGG), concluding that features of biodiversity-rich Palearctic Highland Grasslands type are found in the grassland ecosystems of Armenia<sup>13</sup>. An estimated 8,500 ha of Palearctic grasslands (with declining biodiversity) are found in the prioritized project communities at 3 sites: Selim, Hermon and Shorza. The natural pasture and grasslands ecosystems are located mainly on mountain steppe, mountain forest, sub-alpine and alpine high mountainous landscape areas, located between 1400-3500 meters above sea level. According to the State Committee of the Real Estate Cadaster about 57.3% of the lands of agricultural significance registered (2.04 million ha) consists of natural arable lands (1.05 million ha of pastures, 121.098 ha of grasslands). About 97% of pastures represents community-state property while 3% is under private property; approximately 55% of grasslands are community-state property whereas 45% are under private property. The pastures and the grasslands are not evenly distributed throughout Armenia, more than 45% are found in Gegharkunik, Vayots Dzor (both regions included in Sevan landscape), Lori and Syunik marzes (regions). The forests of Armenia cover 334,100 ha (11.5% of a historic coverage of 30%), which includes 283,600 ha of natural forests and 50,500 ha of plantation forests. Forests of Armenia outside of official protected areas are managed by the state, through "Hayantar" State Non-Commercial Organization (SNCO– state-owned enterprises) of the Ministry of Agriculture. Oriental Beech (*Fagus orientalis*), the Georgian Oak (*Quercus iberica*), the Oriental Oak (*Quercus macranthera*), the Caucasian Hornbeam (*Carpinus caucasica*) and the Pine Tree (*Pinus kochiana*) form 97.2% of the forested territory in Armenia and 97.2% of the overall forest mass. Armenian forests include a number of endemic and rare species<sup>14</sup> (*further description of pastures and forests resources under Annex 20*).

## Legal and Institutional Context

**13.** A summary of laws, policies and programmes relevant to Biodiversity, Land and Water resources is listed under Annex 17.

### Threats and their immediate root causes

The main threats to biodiversity and land resources in the Lake Sevan Basin listed below are rooted in the outcomes of the agrarian reform and land privatization in early 1990s, undeveloped agricultural markets, economic background and policy framework inadequacies.

**14.** *Human encroachment through land conversion.* Even though agriculture remains the main source of economic activity in rural areas, Armenia still lacks a rational approach to sustainable use of existing arable lands. Armenia has a tremendous agricultural potential, but the land is divided in small parcels and landowners have insufficient knowledge in applying modern cultivation technologies, making a rationalized approach challenging. According to the World Bank, with almost half a million hectares of cropland divided over 350,000 small farms, Armenian agriculture is at a crossroads<sup>15</sup>. Encroachment is evident in all habitats and through various schemes. More than 60% of land is under active agriculture and water wastage is the main cause of soil degradation and salinization due to obsolete irrigation infrastructure. Almost 33% of cropland is not used according to its purpose and/or abandoned, which threatens adjacent biodiversity rich areas as croplands get invaded by aggressive

<sup>11</sup> <https://medwinpublishers.com/IZAB/revision-of-important-bird-and-biodiversity-areas-of-armenia.pdf>

<sup>12</sup> <https://iwlearn.net/resolveuid/6af5017fa3a56bc7b8428f71c100362e>

<sup>13</sup> [https://www.researchgate.net/publication/344142055\\_High\\_diversity\\_in\\_Armenian\\_grasslands\\_EDGG\\_Field\\_Workshop\\_provides\\_standardized\\_data\\_for\\_the\\_first\\_time](https://www.researchgate.net/publication/344142055_High_diversity_in_Armenian_grasslands_EDGG_Field_Workshop_provides_standardized_data_for_the_first_time)

<sup>14</sup> These include Endemic: *Myosotis claralaghezica*, *Colchicum goharae*, *Merendera mirzoevae*, *Ribus armenum*, *Cotoneaster armenus*, *Pyrus elata*, *Pyrus hajastana*, *Pyrus sosnowskyi*, *Pyrus tamamschianae*, *Pyrus voronovii*, *Rosa sosnovskyana*, *Rosa zangezura*, *Rubus takhtadjanii*, *Rubus zangezurus* and rare species registered in the Red Book of Armenia: *Ophioglossum vulgatum*, *Pteridium tauricum*, *Galanthus alpines*, *Castanea sativa*, *Tulipa confusa*, *Epipogium aphyllum*.

<sup>15</sup> <https://www.worldbank.org/en/news/feature/2020/02/03/can-better-land-management-unlock-agricultural-transformation-in-armenia>

weeds that expand and affect biodiversity in the surrounding habitats. Other lands are changed to make room for construction, open mining, development of hydropower production sector, tourism and agriculture, leading to loss of valuable habitats, overexploitation of biological resources and environmental pollution<sup>16</sup>.

**15. Overexploitation and spatial requirements of fragmented wildlife populations and their habitats.** The Caucasus ecoregion is a global biodiversity hotspot. Beyond the boundaries of the well-established protected areas in Armenia, the enforcement of wildlife law is weak and inefficient. Poaching of large mammals such as Mouflon and Bezoar goat for sport and consumption remains quite common. These wild mountain ungulates often occur in fragmented populations because they depend on elevation belts such as alpine grasslands or landscape features such as cliffs on which they rely, as refuge from predators. Due to these associations, wild ungulates are relatively easy to locate and hunt. The analysis of their spatial distribution and delineation of wildlife corridors in the spatial and land use planning, with clear conservation requirements and enforcements should therefore become a priority. Illegal tree cutting for fuel wood, overuse of communal grasslands for livestock grazing are already negatively affecting local biodiversity and key species habitats. Climate change will likely alter the spatial requirements of most species and therefore some flexibility and adjustments should exist within the landscape managed specifically for biodiversity benefits.

**16. Unsustainable grazing loads: underutilization or overutilization** Across the country, landscapes face moderate to severe overgrazing pressure corresponding to high rates of soil erosion, increased soil salinity, lowered soil fertility and loss of grassland biodiversity. Overgrazing of communal pastures end up destroying the upper layer of vegetation and causing subsequent loss of biodiversity with changes of ecosystems and communities of plants. Despite availability of vast pastures, grazing is excessively carried out in only 19 percent of that land (i.e. land in close vicinity, 0-7 km, to the livestock farmers' villages). The remaining 81 percent of grazing land is underutilized. The problem of overgrazing in nearby village pastures and under-grazing in remote areas had led, on one hand to degradation and erosion of nearby pastures, and on the other hand to underutilization of other remote pastures, resulting in a build-up of a soil crust and reduced water absorption and the gradual displacement of valuable pasture flora by lichens. Remote pastures are underused (because of distance and access), but still subject to degradation: in this case by the development of bushes, small trees, and unsuitable species for livestock<sup>17</sup>.

**17. Soil degradation from unsustainable farming practices and desertification.** The annual cost of land degradation is estimated at US\$ 71 million (approx. 4.2% of the GDP)<sup>18</sup>. Of the 464,300 ha of arable lands in Armenia, 20.3 percent is eroded. Inappropriate farming techniques and unsustainable extensive irrigation practices, especially on steep slopes in the meadow and steppe zones, where shelterbelts do not exist, exacerbate erosion problems. Approximately 20% of irrigated areas in Armenia are affected by severe to moderate soil salinity, due to poor maintenance and operation of the irrigation system and inadequate irrigation practices. By 2030, a decline of 8-14% in the yields of the main agriculture crops, and of 4-10% in the yields of pastures is forecasted. Soil humidity will reduce by 10-30%, moisture reserves of various crops will decline by 7-13%, and the water deficit of land will increase by 25-30%. The higher frequency and intensity of heavy rainfall and floods will intensify water-driven erosion, and droughts and southern winds will cause further wind erosion. The assessment of the level of soil erosion in Gegharkunik subregions (Sevan, Martuni, Chambarak, Gavar, Vardenis) shows that approx.80% of the soils are slightly eroded and 19% moderately/strongly eroded. In Vayots Dzor region, the level of soil erosion is estimated at 61% slightly eroded and 39% moderately/strongly eroded. Droughts and sandstorms are more frequent in Vayots Dzor region.

**18. Unsustainable wood harvesting.** Local deforestation is driven primarily by unsustainable wood harvesting due to the precarious socio-economic situation of rural population. The slow pace of reforestation/afforestation, the forest fires and insufficiently robust forest management plans as well as an overall underfunding of the forest management sector are additional drivers. Furthermore, uncontrolled grazing continues to encroach forest lands more and more each year, degrading forest health, structure, quality, and carbon storage potential. Legal and illegal wood harvesting is taking place on areas which potentially qualify as High Conservation Value Forests. The residual effect of past and present ongoing deforestation and forest degradation, combined with continuing forest fragmentation due to construction of roads, pipelines and railways pose a threat to biodiversity.

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<sup>16</sup> NBSAP Armenia

<sup>17</sup> CARMAC Project (GEF/WB)

<sup>18</sup> [https://www.unccd.int/sites/default/files/inline-files/Armenia\\_1.pdf](https://www.unccd.int/sites/default/files/inline-files/Armenia_1.pdf)



**19. *Declining water quality and disturbed aquatic ecosystem in Lake Sevan.*** There are 28 inflow rivers and one outflow (Hazdan river) associated with the Sevan catchment area, affected by several pressures impacting water quality in the Lake Sevan such as: untreated wastewater from domestic and industrial sectors-including mining; diffuse pollution from agriculture sector (crop farming and use of fertilizers, cattle breeding and overgrazing of pastureland and soil erosion). Fish farms and cage farms located in Sevan Lake are further impacting the water quality and represent a source of nitrogen and phosphorus effluents. The impact of fish farming on lake eutrophication and the phosphorus balance have not been intensively studied and significant gaps in other data such as on the fertilizers use in the arable land of Sevan Basin makes it difficult to elaborate on adequate management measures<sup>19</sup>. The lack of monitoring data on the quality and quantity of water resources and on the status of ecosystems represents a challenge in the Sevan basin. While significant progress is being made with support from the European Union (EU) and other donors - there are still important gaps to be filled, including addressing the inadequate hydro-meteorological and hydrogeological observation data due to insufficient monitoring sites; insufficient actual water use data; absence of biological monitoring data; insufficient data on the water abstraction for fish-farming and data on phosphorus release from fish farms; as well as data on wastewater composition and volume. Furthermore, the current water uses in Sevan basin - including excessive transfers of Lake Sevan's water through Sevan-Hrazdan Cascade for generation of hydropower and irrigation represent compounding drivers. The fluctuation of water's temperature (due to cooling water, wastewater release in the lake, water stagnation due to abstraction; climate change, etc) and the drop in the available oxygen by organic pollution, eutrophication and algal blooms are further disturbing the lake's aquatic ecosystem.<sup>20</sup>

**20. *Climate change*** According to the Fourth National Communication to the UNFCCC, under anthropogenic influence, Sevan Lake's water level has decreased in the past decades by approximately 20 meters, and its water volume by more than 40% leading to significant thermal regime and ecosystem changes. Climate change is further contributing to the worsening of the lakes ecosystem's condition. Air and water temperature (within the range of 12-19.4 degrees Celsius<sup>21</sup>) are increasing, exacerbating eutrophication processes with peaks in summer and autumn. The increase in temperature will have a negative impact on fish populations, particularly the endemic Salmonidae species, likely to be gradually replaced by *Cyprinidae* species, which are less sensitive to water temperature and content of dissolved oxygen. As a result of a reduction in precipitation, saline marshes located at the lower mountain level will transition to herbaceous ecosystems such as saline steppes<sup>22</sup>. Plant and animal species are likely to shift upwards in elevation due to climatic changes, altering ecosystem structure, habitat biodiversity and ecosystem services. Wildfire risk is projected to increase under all climate change scenarios accounting for up to 1300 ha of lost forest ecosystems by 2030. The forest ecosystems in Vayots Dzor region are vulnerable to increasingly dry and arid climate. More than 15% of Armenia's higher plant species are in danger of extinction due to projected climate change. Semi-desert and desert areas are projected to expand by 30%, which will accelerate desertification. More frequent summer droughts and water stress will reduce the growth rate of trees and increase susceptibility to pests and diseases; this will also create conditions conducive to more frequent and intense wildfires, leading to an estimated 14,000 to 17,000 ha of forest loss by 2030. Two primary types of droughts may affect Armenia: meteorological (usually associated with a precipitation deficit) and hydrological (usually associated with a deficit in surface and subsurface water flow, potentially originating in the region's wider river basins). At present, Armenia faces a significant annual probability of severe meteorological drought.<sup>23</sup>

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<sup>19</sup> Sevan Basin Management Plan (EU Water Initiative Plus)

<sup>20</sup> EU4Sevan Project Document (CRIS No.ENI/2020/416-204)

<sup>21</sup> Data recorded between August-October 2016

<sup>22</sup> [https://unfccc.int/sites/default/files/resource/NC4\\_Armenia\\_.pdf](https://unfccc.int/sites/default/files/resource/NC4_Armenia_.pdf)

<sup>23</sup> Armenia Climate profile, WB,2021 [https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15765-WB\\_Armenia%20Country%20Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15765-WB_Armenia%20Country%20Profile-WEB.pdf)

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### III. STRATEGY

**21.** The project’s strategy is based on the above context and global significance of Armenia’s biodiversity, the detrimental impacts of unsustainable agriculture that threaten Lake Sevan landscape’s biodiversity and drive environmental degradation, the identified barriers where future efforts must focus and the foundations in place on which to build and strengthen the protection and conservation of vital ecosystems and biodiversity that anchors livelihoods in Sevan Basin landscape.

**22. Without the GEF investment,** it is likely that actions against the pressures and drivers identified will be fragmented and largely diluted due to the known barriers, insufficient resources and capacity, and other competing national priorities. The biodiversity-rich grasslands will continue to lose their rich species composition. Private businesses in the vicinity of PAs/KBAs (tourism, agriculture, forestry) will not mainstream biodiversity conservation as a priority. No incentives to support biodiversity-friendly practices for the small-scale production and service businesses (tourism, farming) will be place. Sevan National Park will remain insufficiently capacitated to implement the new management plans that is being developed with the EU support (UNDP EU4Sevan project component). The lack of integrated monitoring data and real-time information on species, habitats, changes of ecosystems and their causes will continue to be stumbling blocks to the planning and decision-making processes and to a better integration of biodiversity values in the broader landscape. For the KBAs, IBAs and other biodiversity hot spots to be effective in the conservation of viable species populations, they need to be adequately interconnected. Currently, despite ad hoc efforts of academia and NGOs, there is insufficient data on critical biodiversity outside Lake Sevan National Park, and most of the monitoring information consist of data on lake water quality and fish population- a situation likely to be maintained. The current decoupling of researchers from decision makers in managing biodiversity will continue. The current land use planning will continue to have no specific provisions to define the biodiversity landscape elements and the anticipated change in their spatial requirements because of climate change.

**23.** The **GEF alternative scenario** builds on the lessons learned from previous GEF and other experiences with respect to demonstrating integrated landscape approaches and will maximize the existing baseline (described further below). The project aims to bring about a paradigm shift towards delivering effective and scalable solutions at key target sites through LDN compatible landscape management approaches, underpinned by spatial and land use planning that will guide local SLM measures to secure ecological integrity of key habitats and population of globally important species, by bringing together relevant sectors and other interested parties in an integrated, coordinated manner that will foster the necessary enabling conditions for achieving long-term environmental sustainability across entire Sevan basin landscape.

#### Alignment with GEF Focal areas

**24.** The project is programmed for the BD focal area within its Objective 2 “Address direct drivers to protect habitats and species” and Objective 1 “Mainstream biodiversity across sectors as well as landscapes and seascapes”. The main entry point to address direct drivers of biodiversity loss will be “Improving Financial Sustainability, Effective Management, and Ecosystem Coverage of the Global Protected Area Estate” where the project will contribute to the achievement of global and regional targets for the targeted GEF 7 core indicators for the BD focal area. The project will also work to strengthen the capacity of Sevan National Park located in the targeted project area. The project’s contribution to Biodiversity mainstreaming addressing Objective 1 is reflected by its focus on landscape approach and spatial and land use planning to ensure that land and resource use is appropriately situated to maximize production without undermining biodiversity and that local natural resource users are incentivized to biodiversity-friendly practices that preserves biodiversity in production zones and maintained ecological corridors for safe wildlife migration.

**25.** With respect to LD focal area, the project is aligned with LD 1-4 “Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape” and has several focused interventions consisting of: (i) assisted natural regeneration of vulnerable sparse juniper forests and other forest ecosystems on approximately 2,200 ha of degraded forest, with Hayantar agency, incentivizing local communities away from activities that are encroaching on juniper forest and other forest ecosystems ; (ii) sustainable climate-sensitive management regimes for 5,800 ha of forest ecosystems, with Hayantar agency, including local communities; (iii) improved grazing practices on 150,000 ha of pastures and grasslands benefiting soil and biodiversity in

partnership with 10 Pasture Users Cooperatives and with local communities managing the pasture areas ;(iv) improved water management, land use management and crop farming on 10,000 ha of arable land, including repairs of irrigation infrastructure working with WUAs and supporting mobilization of funds for the required works. These SLM practices are aligned with the LDN prevent-reduce-restore degraded land philosophy, anchoring the ISLUPs, and are designed to also contribute to the reduced use of chemical fertilizers (through appropriate planning and design of LDN/SLM measures) and implicitly supporting the broader efforts of the government and other donors to reduce pollution of freshwater adjacent rivers hosting important fish spawning habitats and critical breeding and feeding sites of vulnerable avifauna.

**26. Global Environmental Benefits:** The project's quantitative contributions to the GEF's Core Indicators are further detailed in the Core Indicators Worksheet. Sevan Basin is strongly interconnected, with multiple ecosystem services dependent on several KBAs/IBAs and biodiversity hot spots anchoring the entire landscape and the project's integrated approach generates multiple GEBs. LD benefits come from reduced land degradation and improved soil condition. The project will support the improved soil productivity on approximately 10,000 ha of arable land, through improved irrigation methods, and non-depleting agriculture measures that will aim at increasing soil productivity and reducing the amount of fertilizers used in conventional agriculture and decreasing soil erosion, which will contribute to some extent towards a reduction of single pollution sources and implicitly towards a positive change in improving the water quality in Sevan and Arpa basins and decreased water abstraction for irrigation. The project supported GEB will be expressed also as improved soil condition and grassland biodiversity for 150,000 ha of pastures and improved regeneration rate of 2,200 ha forest and sustainable management of 5,800 ha of forests. Targeted LDN compatible SLM measures will help decrease the soil erosion risk from crop fields and pastures and freshwater and soil pollution with mineral fertilizers. Carbon benefits will accrue as soil carbon is restored and forest and grasslands and pastures regenerates.

**27.** The lake and freshwater river habitats in Sevan Basin landscape provide ecosystem services, such as freshwater supply, climate regulation and aquatic recreation. The surrounding areas include mountain pastures and meadows, mixed temperate forest and sparse juniper forest ecosystems sheltering important wildlife. At the same time, there are vast tracts of degraded land around these areas that can be restored to sustainable production. The project addresses land/water and biodiversity resources through an LDN compatible landscape approach that will be implemented through Integrated Land Use and Spatial Plans (ISLUPs) and further through concrete SLM measures around KBAs/IBAs- and this integrated approach itself will generate multiple environmental benefits. As such, sustainable production and restoration of degraded lands around these KBAs/IBAs, reserves and wildlife sanctuaries inside and outside legally protected areas will contribute to improving the ecological condition and ecosystem services of Sevan Lake and associated rivers and wetlands, as well as surrounding steppe and mountain meadows, forests and arable land. The rehabilitation of degraded lands will support the needs of agriculture without further encroachment on wildlife habitat. For example, the gradual regeneration of approximately 2,200 ha of forest of which 588 ha of degraded juniper sparse forest through ban on surrounding pasture grazing in the Juniper Open Woodland Sanctuary will create a suitable habitat for a migration of wildlife and potential recolonization of Bezoar Goat in Sevan Basin. The sustainable pastures and grasslands regime of 150,000 ha of pastures of which approximately 8,500 ha biodiversity-rich Palearctic grasslands will contribute to the ecological integrity of the Southeastern Lesser Caucasus Ecological Corridor and functionality of safe wildlife migration corridors.

**28.** Sizable BD benefits are also associated with the improved management status on 147,456 ha of Protected Area (KBAs/IBAs) and stable status of populations of key species. The GEF investment will significantly contribute to strengthening the management effectiveness of existing KBA/IBA within the perimeter of the Protected Area and outside of it, stabilizing therefore the population of key species and securing valuable habitats such as the South Eastern Lesser Caucasus Ecological Corridor and potential expansion of the vulnerable Bezoar Goat (*Capra aegagrus*) VU population from Vayots Dzor to Gegharkunik, as a result of a regeneration of its preferred habitat in and around the Juniper Open Woodland Wildlife Sanctuary and other sites in Gegharkunik region. Important GEB will be derived from the project-supported interventions on integrated landscape management underpinned by biodiversity-sensitive spatial planning of KBAs/IBAs helping to preserve the population of globally important species. The Gegharkunik region hosts the Sevan KBA/IBA (171,972 ha) nearly completely covered by the National Park Sevan (147,456 ha). The Juniper Woodland Sanctuary (3,312 ha) is included in the Sevan Ridge KBA, and it is hosting mountain meadows and critical juniper sparse forest habitat once inhabited by the Bezoar Goat (*Capra aegagrus*), where the project will support migration corridors that in time is expected

to lead to a re-colonization of the Bezoar Goat in Sevan Ridge. In Vayots Dzor region, the Jermuk-Yeghegis KBA/IBA includes several wildlife sanctuaries sheltering mountain ungulates. These KBAs/IBAs and wildlife sanctuaries are partially or totally nestled within the Eastern Lesser Caucasus Corridors, one of the main ecological corridors in Caucasus Ecoregion (WWF), encompassing broadleaf and coniferous forests and subalpine-alpine meadows and shrublands habitats, preferred by the wild mountain ungulates and the Caucasian Leopard (*Pantera pardus*), their predator.

**29.** The project will contribute to the national effort toward meeting the Aichi Targets with its incremental effort at preventing the loss of natural habitats and reducing degradation and fragmentation (Aichi Target 5), strengthening management capacity, resilience and financial sustainability of protected areas (Target 11), and restoration and building resilience of key ecosystems and habitats (Targets 10 and 15). The project has been designed using the UNCCD LDN Checklist (*Project Document Annex 24*). The ecosystem management benefits will be mostly associated with the integrated land use planning and implementation of LDN through tailored Sustainable Land Management (SLM) in buffer and production/economic zones in the PA/KBA/IBAs surrounding geographies to benefit biodiversity. The landscape approach in Sevan Basin will contribute to the broader efforts of the government and other donors to the implementation of measures under Sevan River Basin Management, in terms of supporting an improved land use planning and sustainable nature positive agriculture practices that will contribute to the reduction of the soil erosion and the reduction in the use of the chemical fertilizers, that will contribute to the decrease of pollution in lake Sevan and associated river system and fish spawning habitats. The gradual improvements will be seen as the demonstrated LDN compatible SLM measures will be taken up at a wider level in Sevan Basin, as a result of sustainable financing flow through the Agri-payment scheme and the systemic change in land use and spatial planning that will incorporate LDN principle and will mainstream biodiversity spatial elements. The envisaged global environmental benefits will be expressed as:

- 147,456 ha protected areas under improved management and financing effectiveness consisting of the Sevan National Park (Indicator 1.2).
- 2,200 ha of restored forest land, including approximately 588 ha of juniper sparse forest in the Juniper Open Woodland Sanctuary (Indicator 3.4)
- 150,000 ha of pastures and grasslands under sustainable management, including approximately 8,500 Palearctic grasslands with preserved biodiversity (Indicator 4.1)
- 10,000 ha arable irrigated land under sustainable management and non-depleting farming practices (Indicator 4.3)
- 5,800 ha native forest ecosystems under sustainable regimes, with updated climate sensitive management measures and forest fire prevention measures (Indicator 4.3)
- 1,403,851 CO<sub>2</sub>e- total carbon sequestered (Indicator 6.1) as calculated using FAO-EXACT tool, considering the assisted natural regeneration of 2,200 ha of forest and improved soil carbon in sustainably management pastures and grasslands on 150,000 ha.

**30. Socio-economic benefits:** The envisaged benefits to local and national stakeholders will be interconnected with the aggregated environmental benefits enabled by the project's features: (i) embedded integrated benefits and synergies across focal areas, (ii) mechanisms for integrated decision making and (iii) landscape-scale designed interventions. The project incentivizes local actors away from destructive behaviour through engaging them in biodiversity friendly livelihoods around protected areas, KBAs/IBAs, enlisting community support for safe wildlife migration corridors. The project will support gender equality and women's empowerment, through inclusion in decision-making processes on natural resource management, delivery of capacity building on improving financial management skills, and disseminating information on available financing options for local community organizations, helping to enhance small-scale entrepreneurship, with a particular emphasis on engaging women-led community-based organizations and local enterprises.

**31.** The project activities will emphasise priority inclusion of women, youth, persons with disabilities, war refugees, and other vulnerable groups. Livelihood benefits will be generated for local households through increased soil productivity, soil and water conservation, access to low-value grant assistance for interventions on biodiversity conservation and sustainable use of natural resources, and through access to capacity building on sustainable nature-positive LDN compliant agricultural practices, best practices in ecotourism, biodiversity conservation, and alternative livelihoods. Awareness, technical knowledge and access to financing are key to ensuring that stakeholders will be able to adopt innovative, environmental-friendly practices. Approximately

65,800 people stand to benefit directly from various project's interventions. The project aims at increasing capacity of 200 public sector employees and 100 PAs staff who will be participating in training activities. PA staff will have an increased knowledge and capacity for biodiversity management and environmental law enforcement.

**32.** The local authorities will be supported/coached to writing eligible proposals under existing state-programmes in order to leverage additional funding for sustainable pastures and livestock management, improved water infrastructure of remote pastures, local rural development and market access and refurbishment of irrigation infrastructure with financing from available national and local financing programmes. In the same vein, the local natural resource users will be trained and supported to attract additional funding to implement SLM measures. Local tourism entrepreneurs will be trained and supported to implement eco-tourism activities. About 200 of local producers/farmers will benefit from micro-grants and an estimated income increase of at least 20% as a result of the implemented SLM measures. The generated experience is replicable at the Sevan basin landscape level, particularly through the guidelines, manuals, land use planning tools in particular the LUP4LDN software, demonstrates experiences at local level, aided by the awareness events and radio/TV talk shows. Through the awareness events and dedicated radio and TV shows that are being listened to by a large number of local community members, it is possible that number of beneficiaries of the project will be much larger. Improved awareness and technical knowledge, and assistance to access available funding, will result in improved livelihoods resilience leading to reduced economic losses associated with water scarcity, and greater agricultural productivity, increased revenues and employment prospects and diversification of income sources. The project's micro-grant scheme (aligned with UNDP low-value grants procedures) include gender sensitive and inclusive criteria that will prioritise mid and small farmers and vulnerable families, including women, youth and vulnerable people thus prioritising support to the most vulnerable from environment and social perspective. Greater resilience will result in reduction in economic losses associated with climate shocks.

#### ***The baseline scenario and any associated baseline projects***

**33.** Under the baseline scenario, the Government of Armenia (GoA) is committed to provide an effective response to achieving land degradation neutrality and implement measures to meet global commitments under UNCCD contributing to Goal 15.3 of the SDG to achieve LDN by 2030. Despite the existing few donors funded projects implementing sustainable land management measures (SLM) and support to LDN enabling framework (such as WB and FAO), in the Lake Sevan Basin landscape the LDN approach is not part of the local and regional land use planning and there is basically no integrated land use planning and no technical knowledge and institutional coordination for the implementation of LDN compliant integrated land use planning.

**34.** Several restoration and improvement of degraded pastures have been implemented in Armenia in different regions including Gegharkunik and Vayots Dzor with very good results especially under WB CARMAC I and CARMAC II, however the investments did not provide solutions to the existing problems that would ensure sustainable pasture management and accessibility of distant pastures and did not actively include measures for the preservation of grasslands biodiversity. The baseline assessment of the exiting financing instruments in agriculture sector (described under Annex 20) revealed that there are no subsidies or incentives for biodiversity sensitive sustainable agriculture practices, and for a wider uptake of SLM measures aligned with LDN based integrated land use planning in Armenia and in the Lake Sevan landscape. The national approach to agricultural incentives is very much production-oriented with insufficient regard to natural resources, including soil productivity and water consumption at irrigated areas. Farmers are not financially stimulated to manage their land in an integrated manner that produces economic, social, and environmental benefits and extends the care for soil productivity, nearby biodiversity and rural vitality. A large share of public investments will continue to flow towards the rehabilitation of the irrigation sector although the budget for the maintenance of irrigated infrastructure covered from public funds is insufficient and public funds can only partially cover hydrotechnical repair works. However, the benefits of sustainable LDN compliant cropping patterns that do not deplete soil resources in Sevan landscape will continue to remain largely untapped, since there very little incentives and technical knowledge to progress with sustainable farming. Cross-sectoral coordination that allow for integrated policy making in Lake Sevan basin landscape is insufficient for the integration of a complex set of threats and barriers in Lake Sevan Basin. Biodiversity conservation has been done primarily through "classic" approaches through designation of protected areas and focus on lake Sevan aquatic ecosystem. There is little focus on the biodiversity surrounding the Lake Sevan littoral areas and, on the reserves, and wildlife sanctuaries that are under the Sevan National Park jurisdiction.



35. The biodiversity-rich grasslands and palearctic type of grasslands will continue to lose their rich species composition. Private business in the vicinity of PAs/KBAs (tourism, agriculture, forestry) does not mainstream biodiversity conservation as a priority. No incentives to support biodiversity-friendly practices for the small-scale production and service businesses (tourism, farming) are in place. Sevan National Park will remain insufficiently capacitated to implement the new management plans that is being developed with the EU support (UNDP EU4Sevan project component). The lack of integrated monitoring data and real-time information on species, habitats, changes of ecosystems and their causes are stumbling blocks to the planning and decision-making processes and a better integration of biodiversity values in the broader landscape. For the KBAs, IBAs and other biodiversity hot spots to be effective in the conservation of viable species populations, they need to be adequately interconnected. Currently, despite ad hoc efforts of academia and NGOs, there is insufficient data on critical biodiversity outside Lake Sevan National Park, and most of the monitoring information consist of data on lake water quality and fish population. The current decoupling of researchers from decision makers in managing biodiversity will continue. The current land use planning will continue to have no specific provisions to define the biodiversity landscape elements and the anticipated change in their spatial requirements because of climate change.

#### Associated Baseline Projects

36. The **National LDN Target** agreed by Armenia is the following “By the year 2040, the carbon stock lost between 2000 and 2010 will be recovered and increased by 2,8% in relation to present”. The National LDN target setting process recommends several directions to be followed in order to attain the LDN such as: 1) Halting cropland degradation currently affecting 2/3<sup>rd</sup> of the country’s territory, by applying organic agriculture measures, increasing knowledge and awareness about the use of organic fertilizers; 2) Implementing reforestation of 2/3<sup>rd</sup> of degraded land, expected to be supported by the *Armenian Forest Programme* aiming at increasing the afforested area up to 20% of the country’s territory; 3) Halting deforestation and improving forest management on 100% of national territory; 4) Halting overgrazing and improving grassland management on the 100% of national territory. A draft Government Decree on the formal approval of Program on Land Degradation Neutrality is submitted for Government’s review (2021). The UNDP/GEF project will contribute to the overall progress towards the National LDN Target by (i) focusing at regional LDN target setting and implementation in Lake Sevan Basin landscape (ii) strengthening the inter-sectorial coordination for LDN at Lake Sevan landscape level (iii) coordinating closely with the existing similar LDN initiatives (FAO) in order to establish monitoring and reporting mechanisms for LDN and exchange lessons learned and experience on LDN regional implementation and reporting from sub-national (regional) to national levels.

37. There is currently no independent national policy framework that deals explicitly with pastures and grasslands management nevertheless there are strategic documents which include related provisions. These include the Sustainable Development Strategy of RoA Village and Agriculture 2010-2020; Conservation, Use and Reproduction Strategy of RoA Biodiversity; State Action Plan and the long-term development strategy of RoA 2014-2025 (the legal and policy baseline is presented under Annex 17).

38. The Government of Armenia is committed to set and implement measures that meet the global commitments of LDN, contributing to goal 15.3 of the SDGs to achieve LDN by 2030. The Government’s **Agricultural Development Strategy** (2014-2025) and the **Government’s Sustainable Development Strategy** (2030) are focusing on sustainable agriculture, by promoting soil conservation measures improving water collection and irrigation methods limiting the use of fertilisers and other agrochemicals and improving pasture management. A number of laws have been established to address environment in farming practices however limited resources are allocated to reduce soil erosion and use of fertilisers or to increase production of degraded land through agroforestry, plantation of shelterbelts to reduce degradation of arable land<sup>24</sup>, facilitating public investments into sustainable land management measures, some of them being complementary to the project’s objective.

39. The EU has been one of the key players in modernising agricultural and rural development approaches. The **European Neighbourhood Programme Agriculture and Rural Development (ENPARD)** in Armenia was implemented between 2015-2017 EU-ENPARD and has promoted sustainable and inclusive agricultural

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<sup>24</sup> IFAD, 2015

approaches and support to rural development through investments in modernisation of equipment, farming techniques and crop diversification, income generating activities in the rural areas. The project will draw on the lessons learned and generated knowledge.

**40.** The GIZ has implemented a regional project targeting Armenia, Azerbaijan, Georgia during 2015-2019 titled **“Integrated Biodiversity Management, South Caucasus (IBiS) programme”** with a total budget of US\$ 22.89 million. The programme focused on two areas related to this project: (i) sustainable forest management at national and forest enterprise levels and (ii) sustainable pasture management at national and local levels. In the forest area the programme focused on the development of a National Forest Management Information System. In the pasture area, it supported the development of a pasture toolkit, which includes a pasture monitoring manual, pasture management guidelines and pasture rehabilitation guidelines. The UNDP/GEF project will seek to include and build on these results and tools developed for pastures management and forest monitoring and will draw on the lessons learned in pilot regions on participatory natural resources management.

**41. WWF Promotion of Ecological Corridors (2015-2020)** funded by the Ministry of Environment and the Government of Germany through KfW Development Bank. The establishment of safe migration ecological corridors included awareness raising and education activities engaging 30 rural settlements in Ararat, Syunik and Vayots Dzor. Community supported nature conservation areas covering 37,000 ha and community supported monitoring programmes have been established. Habitat mapping and species population’s assessment of Armenian Mouflon, Bezoar Goat, Brown Bear have enriched the knowledge base on these threatened species. Community support sub-projects consisting in provision of agriculture machinery, investments in action plans for restoration of adjacent forests, and energy efficient lighting have been implemented in these areas as compensatory mechanisms and support to sustainable resource management.

**42.** EU funded **River Basin management Plan Armenia (EUWI+) 2016-2021** part of the EU Water Initiative Plus for the Eastern Partnership (EUWI+4 EaP) has supported the Armenian government to bring water legislation closer to the EU Water Framework Directive and has developed three rivers basin districts management plans, Sevan Basin among them. The proposed project will further strengthen the intersectoral stakeholders coordination that has been leveraged under the EUWI+ project and through its activities will support the implementation of various actions included in the management plan under Ecosystems chapters such as: support to improved farming practices in Sevan basin, agroforestry measures and improvement of forest ecosystem management; support to integrated monitoring and availability of data on ecosystems and species in Sevan basin.

**43.** Swiss Development Cooperation (SDC) and Austrian Development Agency (ADA) funded **“Livestock Development in the South of Armenia”** and **“Livestock Development South-North”** (finalized in 2021) continued with the **“Livestock Development South-North”** in Syunik, Gegharkunik and Shirak regions up to 2025 with a budget of 2 million Euro.

**44.** Within the framework of the above-mentioned programs that have contributed to increasing the access to remote pastures of Vayk, Yeghegis, Martuni and Shoghakat communities, to establish sustainable pasture management functions, pasture infrastructure has been repaired or constructed, especially in remote pastures (pasture wetlands, cattle sheds, shelters, roads, etc.), and pasture management plans have been developed or amended. Ongoing support is provided for the processing of animal products (milk), improving access to procurement and delivery markets and increasing the level of access to veterinary services. Some support has been provided by both state and various international programs for forest management and improving forest restoration work. Such approaches create certain opportunities to gradually reduce the process of land degradation in natural ecosystems, solving sectoral problems, which is a global problem - a serious challenge for the country. Barriers persist however in terms of sustainability of interventions and co-financing.

**45.** The Ministry for Environment has developed a **National Forest Programme** to support afforestation and reforestation up to 20% of the country’s territory, to be implemented according to Armenia’s commitments under UNFCCC. The annual allocated budget for 2022 is 413 million AMD (approximately 848,600 USD).

46. Several current government investments programmes and donor funded initiatives are particularly relevant for the proposed project:

Implementing Organization	National	Brief description, time period, budget and relevance to the project
Ministry of Economy	<p><b>The Strategy of the Main Directions Ensuring Economic Development in Agricultural Sector of the Republic of Armenia 2020-2030</b></p> <p>The Strategy outlines the key priorities of the agricultural policy of the Republic of Armenia, defines the scope of priority issues, as well as the Action Plan for the initial implementation period of the Strategy (2020-2022). The priorities include, <i>inter alia</i>: climate change adaptation, resilience and environmental sustainability – increased focus on climate change awareness, adaptation and mitigation strategies, while also working to ensure that agriculture sector development is informed by a focus on resource sustainability, including good water and soil management principles.</p> <p><u>Synergies</u>: The proposed project will support some of the measures that are related to the priority investments listed in the Strategy e.g. Improved georeferenced data on abandoned land; Development of Local markets; Improvement of the effectiveness of agricultural advisory services; Support sustainable rural development; Support to modernization of agriculture.</p> <p><i>Total budget: US\$39.8 million</i></p>	
Ministry of Economy	<p>The Ministry of Economy and the World Bank are implementing the project <b>Community Agricultural Resource Management and Competitiveness (CARMAC II)</b>.</p> <p>The main objective of the project is to improve the productivity and sustainability of pasture and livestock systems in the target communities and to increase production volumes produced and marketed in selected high value agri-food value chains Components: Community Pasture and Livestock Management Systems, Value Chain Development, State Capacity Building Capacity.</p> <p><u>Synergies</u>: The proposed project will build on this project’s analysis and lessons learned in pasture management and livestock farmers’ involvement. Out of the 100 selected settlements in 6 targeted regions of the UNDP GEF projects, approximately 26 settlements have previously participated in CARMAC projects, and the project will further build on CARMAC results.</p> <p><i>Total budget: US\$42million</i></p> <p><i>Period: 2015-2022</i></p>	
Ministry of Territorial Administration and Infrastructure	<p><b>Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus (ECOserve)</b></p> <p>The project is implemented in Armenia, Azerbaijan, Georgia aiming at improving conditions for the sustainable and biodiversity-friendly use of natural resources in the dominant land-use systems (grazing, agriculture, and forest) in the South Caucasus. The focus is on the dominant land-use systems - grazing land in Armenia, agriculture in Azerbaijan, and forests in Georgia. Project components: Data collection and management, Regulatory framework, Pilot activities, Training and PR, establishment of pasture platform.</p> <p><u>Synergies</u>: The proposed project will build on the GIS analysis, data and lessons learned on pastureland and forest management.</p>	

	<p><i>Total budget: US\$15 million</i></p> <p><i>Period: 2018-2021</i></p>
Ministry of Environment	<p>Forest Resilience of Armenia, Enhancing Adaptation and Rural Green Growth via Mitigation (FAO/Green Climate Fund)</p> <p>The goal of the project is aimed at strengthening forests' enormous capacity to mitigate against climate change, primarily through reducing forest degradation, planting new forests, and managing existing ones focusing on the forest-energy nexus, the project will target adaptation and mitigation measures in two of the country's administrative areas most vulnerable to climate change 105 rural communities in 8 municipalities of Lori Marz and 102 rural communities in 7 municipalities of Syunik Marz</p> <p><u>Synergies:</u> Exchange of knowledge and good practices in climate resilient forestry measures.</p> <p><i>Total budget: US\$10 million</i></p> <p><i>Period: 2018-2029</i></p>
Ministry of Environment	<p><b>SEVAMOD2 Building up science-based management instruments for Lake Sevan, Armenia</b></p> <p>The project is a continuation of SEVAMOD <i>Development of a model for Lake Sevan for the improvement and understanding of its ecology and as instrument for the sustainable management and use of its natural resources (2017-2019)</i> that provided valuable research results on the water quality assessment of the Lake Sevan and its tributaries. The SEVAMOD2 is funded by the Federal Ministry for Education and Research of Germany and aims at the monthly sampling of water and assessment of water quality in Lake Sevan through the development of physical-ecological eutrophication modelling (considering parameters such as nutrients, plankton, oxygen) and analysis of different scenarios. The project will develop a nutrient management concept and will strengthen Armenia's capacity for the use of remote sensing in water modelling.</p> <p><u>Synergies:</u> The GEF project will support the Lake Sevan National Park management measures and integrated monitoring and will explore the possibility of building on the SEVAMOD research results and SEVAMOD2 proposed Lake Sevan Nutrient Management Concept.</p> <p><i>Period: 2020-2023</i></p>
Ministry of Environment	<p><b>Increased climate resilience of South Caucasus Mountain communities and ecosystems through wildfire risk reduction</b></p> <p>The project seeks to increase resilience of mountain communities and forest ecosystems to climate-induced hazards, and in particular to the increasing risk of forest wildfire in mountainous regions of the Southern Caucasus. By doing so, the project aims to improve the safety and livelihoods of forest-dependent communities, reduce bio-diversity losses and other environmental impacts, reduce the costs associated with large scale wildfire response, loss of life and other damages, and maximize ancillary benefits associated with sustainable forest management, including the role of forests as carbon sinks.</p>

	<p>Synergies: The GEF project will support sustainable forest management plans (under Output 3.1.3) and will work with the “Hayantar” State Non-Commercial Organization (SNCO– state-owned enterprises) of the Ministry of Agriculture in coordination with the Adaptation Fund Project, building on this project’s generated knowledge and experience in wildfire and forest management plans and risk reduction measures at community level in Vayots Dzor region.</p> <p><i>Total budget: 7,475,650 USD</i></p> <p><i>Period:2020-2025</i></p>
Ministry of Economy	<p><b>EU Green Agriculture Initiative in Armenia (EU-GAIA)</b></p> <p>The project will support local smallholder farmers, producers, and agri-businesses in general to develop their competitiveness, through grant schemes and investments in green technologies and demonstrative activities at farm level in Shirak, Lori, and Tavush regions. The project is partially implemented by UNDP.</p> <p><u>Synergies:</u> The proposed project will build on the good practices and will support knowledge exchange and joint awareness and training activities.</p> <p><i>Total budget: EU 9,7 million EUR; Austrian Development Agency: 2 million EUR</i></p> <p><i>Period: 2020-2024</i></p>
Ministry of Environment	<p><b>EU4Energy Efficiency and Environment/ EU4Sevan</b></p> <p><i>(Implemented by GIZ and UNDP)</i></p> <p>The main objective is to support initiatives aimed at energy efficiency and environmental protection. This programme aims to increase energy efficiency in existing buildings, in multi-apartment residential buildings (MAB) as well as public buildings, non-gasified communities, low-income households and aims to reduce water contamination in Armenia’s largest lake. The EU4Sevan (sub)project is to enhance the environmental protection of Lake Sevan by improving water monitoring and management capacities for Lake Sevan watershed; implementation of ecosystem-friendly and water -protecting land use and cultivation practices; capacities for implementing wastewater treatment; awareness. The project will develop Sevan National Park management plan.</p> <p><u>Synergies:</u> the proposed project targets Lake Sevan landscape and will coordinate with EU4Sevan project to support Sevan National Park with the implementation of the management plan developed under the EU4Sevan.</p> <p><i>Total budget: EU4Energy Efficiency and Environment 9,000,000 EUR, of which EU4Sevan: 5,000,664 EUR</i></p> <p><i>Period: 2020-2024</i></p>
Ministry of Environment	<p><b>Program of Establishing New Forest Stands Around Lake Sevan (2014-2023)</b></p> <p>The main objective of the Program is to restore the environmental balance of Lake Sevan and its watershed through the expansion of forested areas. Planting of valuable forest fruit species is aiming to also benefit local communities. Within the framework of the programme a tree/plan nursery will be set up to support planting of 1,113 hectares of new forested areas.</p> <p><u>Synergies:</u> The proposed project will support sustainable forest management plans integrated with the exiting forest management planning of the forestry business units</p>



	<p>and Sevan National Park administration. There are good opportunities for sharing knowledge and building on existing plant/tree nurseries and strengthening the infrastructure.</p> <p><i>Total budget: US\$4.8 million (including US\$ 1.8 mil for planting on community lands)</i></p> <p><i>Period: 2019-2021</i></p>
Ministry of Environment	<p><b>EU4Climate</b></p> <p><i>(Armenia component implemented by UNDP)</i></p> <p>The EU4Climate helps governments in the six EU Eastern Partner countries Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine to act against climate change. It supports countries in implementing the Paris Climate Agreement and improving climate policies and legislation. Its ambition is to limit climate change impact on citizens lives and make them more resilient to it.</p> <p><u>Synergies:</u> The coordination potential rest with the opportunity to align the proposed project's supported biodiversity friendly and LDN compliant outputs with the EU4Climate supported adaptation planning.</p> <p><i>Total budget: US 10.3 million</i></p> <p><i>Period: 2019-2022</i></p>

#### Remaining barriers addressed by the project

**47. Key Barriers** The following are the remaining key barriers that need to be removed on the path towards a sustainable use of natural resources and conservation of land resources and high value ecosystems in Lake Sevan landscape:

**Barrier 1:** *Limited technical capacity and stakeholders' coordination for sustainable integrated spatial and land use planning those accounts for LDN and high nature value habitats in the Lake Sevan Basin*

**48.** According to the National LDN report, approximately two-thirds of all agricultural lands are at different stages of degradation. Although the underlying causes of the land degradation are well understood, the technical and institutional capacities, including inter-sectoral coordination to address land degradation are insufficient. There is basically no integrated land use planning in Armenia. LDN approaches are not part of the land use planning, legal, policy and regulatory framework at national or regional/local levels and capacities to implement integrated land use planning and sustainable non-depleting agriculture practices that reduce/eliminate diffuse water pollution sources from agriculture are extremely limited. Furthermore, to conserve biodiversity outside PAs, there is a need for local-level integrated land use spatial plans that not only fully take into consideration biodiversity conservation considerations but are also effectively implemented with compliance being monitored and enforced. High nature value farmland and grassland in Armenia are not covered in full by any strategic document or plan in operation. Biodiversity conservation, in practice, relies primarily on in-situ protection, within the existing protected areas which do not cover all species and habitats important for conservation, like the biodiversity rich grasslands which are exposed to various threats and pressures. Several PAs and KBAs/IBAs, wildlife sanctuaries and other biodiversity hot spots are present in Lake Sevan landscape outside the Sevan National Park, however a spatial integration of the biodiversity in land use and spatial planning at regional and local levels remains yet to be achieved.

**Barrier 2.** *Limited technical knowledge and lack of financial incentives for LDN/SLM implementation and livelihood diversification*

**49.** Land Degradation Neutrality is implemented at local level through tailored Sustainable Land Use Management (SLM) measures that will aim at preventing-reducing-restoring degraded land. Currently there is limited knowledge and information on LDN approaches and guided LDN compliant SLM at local level. There are

successful models of SLM implementation in different areas, within the framework of various GEF and UNDP and other multilateral (e.g., World Bank, IFAD) and bilateral donors that have been investing for several years in developing Armenia's national capacity for sustainable land and water management, with some progress. At local levels, there are significant gaps in the technical knowledge regarding the implementation of sustainable pastures and forest management measures and efficient irrigation and crop farming methods that do not deplete soil resources. Similarly, there is little knowledge on the potential for alternative incomes and little or no affordable finance to offset initial investments to facilitate livelihood diversification of the local communities and an increase of their food security and resilience.

**Barrier 3:** *Little or no financial/compensation schemes to incorporate nature positive practices in the priority sectors*

**50.** Although certain biodiversity conservation considerations are embedded into the sectoral policy framework documents, little or nothing is provided for the implementation of biodiversity-friendly practices in the priority sectors (tourism, forestry, agriculture). Private businesses in the vicinity of PAs and KBAs (tourism, agriculture, forestry) do not mainstream biodiversity conservation as a priority. No incentives to support biodiversity-friendly practices for the small-scale production and service businesses (tourism, farming) are in place. In agriculture sector, the high cost of accessing distant pastures and fodder provision together with limited availability of labor, have increased pressure on pastures near villages. Declining livestock productivity has pushed households to generate income through increasing their livestock numbers, adding pressure on pastures. There is insufficient financial support for farmers to access distant pastures and there are no compensations that would incentivize the implementation of sustainable management practices beneficial for biodiversity rich grasslands such as the palearctic grasslands that are found in the project area. Similarly, there is no evidence of existing regulations and/or certification standards in the travel and tourism sector that would incentivize the application of nature-based, environmentally responsive and biodiversity sensitive operations.

**Barrier 4.** *Limited human and financial resources in the management of PAs*

**51.** The lack of capacity at the individual, institutional and systemic levels is a limiting factor in biodiversity conservation and PA management in the country. PA management barriers are associated with deficiencies in management planning and implementation of PA management plans, insufficient capacities for patrolling and monitoring, unrealized opportunities for sustainable tourism development and income generation. Inadequate enforcement of relevant regulations remains one of the important underlying causes of biodiversity loss. The GEF UNDP Project 3986 "*Developing the Protected Area System of Armenia*" highlights a series of capacity gaps of the PAs such as gaps in business and management planning, capacities in tourism management, capacities in community-based/participatory management, biodiversity monitoring law enforcement.

**52. Theory of Change:** The proposed project's Theory of Change is based on a landscape approach that promotes socio-ecological connectivity, based on the premise that land, water and biodiversity resources are managed in an integrated way, that takes the full range of ecosystem services into consideration. The project components are closely aligned to ensure an integrated landscape approach within Lake Sevan basin for sustainable land, biodiversity and water management that safeguards the continuity of ecosystem services upon which local livelihoods depend. Therefore, the project targets different types of land use: pastureland, forestland, irrigated agricultural land and critical ecosystems (protected and otherwise). For an integrated landscape approach, a coherent and complete picture of the landscape must be visualized and addressed through multiple types of related management measures.

**53.** In this context, the project will support biodiversity sensitive LDN-based Integrated Spatial and Land Use Plans (ISLUPs) to put all the different types of the ground management practices in place that are necessary for an integrated approach to landscape management: efficient water management, sustainable and biodiversity friendly land management for arable land and pastureland, sustainable forest management and effective protected area management. LDN will be achieved through the implementation of the ISLUPs and scalable LDN compatible SLM measures that not only paves the way towards land degradation neutrality but also towards diminished water pollution- from agriculture and soil erosion- in the lake and the associated river systems (hosting spawning grounds for key fish species of Lake Sevan) and towards a better integration of biodiversity (within PAs and otherwise) into the broader landscape, to provide for the ecological connectivity and wildlife migration corridor, and continuity of ecosystem services that sustain livelihoods.

**54.** While the landscape approach is retained throughout the whole project, when it comes to working on the ground, the project is divided into closely aligned components. Thus, a component dedicated to LDN, and integrated land use planning (Component 1) is closely aligned with work on key biodiversity areas is segregated under Component 2 (focusing on biodiversity within and outside the existing Sevan National Park) which is central to retaining ecosystems stability of the whole landscape. Specifically, work on securing critical biodiversity value within the Sevan National Park allows to maintain resilient delivery of ecosystem services across the whole landscape, many of which are critical for the economic activities in the productive zones such as pollination, erosion control, micro-climate regulation and ground water table maintenance. Through support to key biodiversity areas, these functions will be maintained and enjoyed by economic actors in the wider landscape. At the same time the work outside the PA in the economic landscape needs to incorporate LDN principles as otherwise these areas will be used beyond their regeneration capacity and any conservation efforts at protected areas alone would be futile.

**55.** The four project components are closely linked and mutually reinforcing: Under Component 1, the LDN targets in Gegharkunik and Vayots Dzor regions hosting the Lake Sevan basin landscape will be established and will guide the formulation of the Integrated Spatial and Land Use Plans (**ISLUP**) These integrated land use plans represent the main element linking all the land use types and the project components together. A multistakeholder cross-sectoral coordination mechanism will support the integration of different land and water management use approaches in PAs buffer and production zones.

**56.** Under Component 2, the project will strengthen the management of the Lake Sevan National Park which almost entirely overlaps with Sevan KBA, anchoring the Lake Sevan Basin landscape and will support a better integration of the PAs/KBA buffer and economic zones into the broader landscape through the ISLUPs developed under Component 1. The assessments and inventories of KBAs and other biodiversity hot spots under this component, will ensure that key biodiversity values outside the Lake Sevan National Park are mapped, their conservation status assessed, and climate sensitive conservation spatial requirements mainstreamed into ISLUPs. This allows to maintain resilient ecosystem services across the whole landscape, many of which are critical for the economic activities in the economic zones such as pollination, erosion control, micro-climate regulation and ground water table maintenance.

**57.** Under Component 3, the project will effectively demonstrate sustainable use of biodiversity and land resources in PAs buffer and economic zones and in the vicinity of PAs, KBAs and ecological corridors reflected in the ISLUPs, and will offer financial incentives for the implementation of biodiversity sensitive SLM measures in prioritized areas. The design of the LDN compatible SLM measures (e.g., sustainable pasture management, forest restoration and sustainable forest management measures, integrated water management planning and LDN guided farming techniques on irrigated land, agroforestry etc) implemented under this component are guided by the Integrated Spatial and Land Use Plans and the LDN assessments carried out under the other two components.

**58.** The project experience and knowledge will be systematized and shared widely using available platforms, fostering iterative learning processes in coordination with similar initiatives (e.g., FAO; GIZ) . Monitoring and evaluation of project results will support adaptive management and learning. With the support of the inter-sectoral coordination mechanism set-up under Component 1 the results will be scaled up at Lake Sevan Basin landscape level.

**59.** The project's main feature is its integrated landscape approach supporting effective management of the Lake Sevan National Park and at the same time targeting multiple types of landscapes in the national park's vicinity covered by the project supported ISLUPs e.g.,10,000 ha of irrigated agricultural land; 150,000 ha pastureland; 8,000 ha of forest ecosystems, and other critical ecosystems located outside Lake Sevan National Park. The proposed interventions are sequenced to include adaptive management strategies encompassing integrated and participative landscape approaches, innovative biodiversity conservation and mainstreaming, sustainable farming, pasture and forest management techniques that will be included in alternative transformational pathways and will be reinforced consistently through learning and awareness that are necessary for removing existing barriers. The project does not have the scope and resources to fully implement efficient water management and sustainable land management throughout the entire landscape, but by introducing these good practices in priority areas in Gegharkunik and Vayots Dzor provinces, and through the

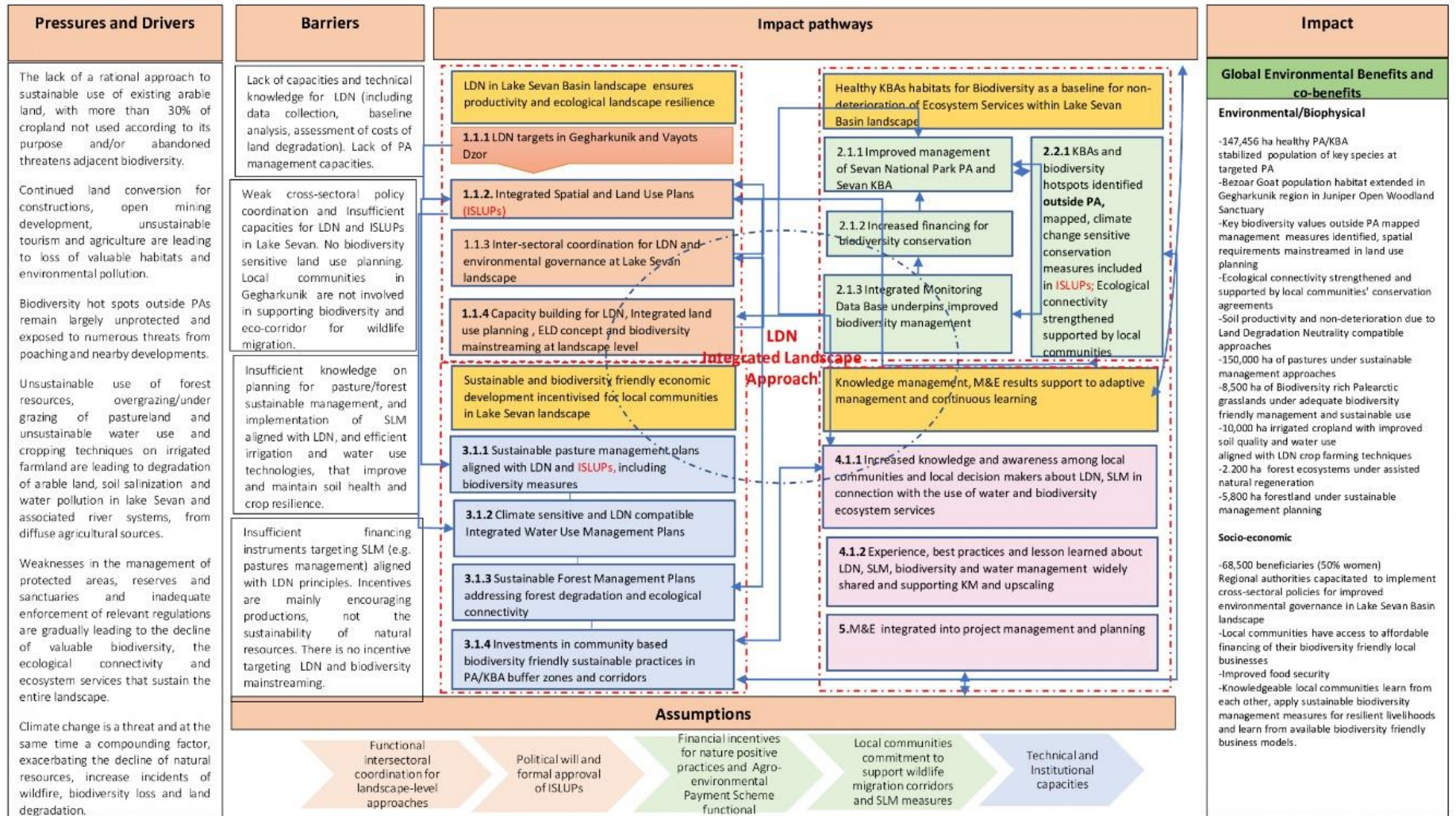
capacity strengthening and cross-sectoral cooperation of responsible government institutions, the project results will be sustained and replicated throughout Lake Sevan basin landscape.

**60.** The drivers of change are represented by: (i) Government's commitment to implementing LDN and environmental responsible governance considering the overwhelming importance of Lake Sevan for the country; (ii) Financial government support for sustainable livestock-based business models and affordable lending conditions to develop climate-smart agriculture and (iii) Access to technical knowledge and capacity building.

**61.** The proposed transformative paths are based on several assumptions identified that will be further tested throughout the project implementation:

- Political will and institutional coordination : It is expected that political will exists to foster inter-sectoral coordination in Lake Sevan Basin and that the strengthened Intersectoral Committee of Lake Sevan Basin (Output 1.1.3) resulting from the joined efforts of the GEF project and the EU funded EU4Sevan project, will lead to strengthened capacity for a better integration of LDN/SLM integrated landscape approach aligned with IWRM approach underpinning the River Basin Management Plan for Sevan and the subsequent Plan of Measures for the Sevan River Basin District, in terms of promoting ecosystem friendly agricultural practices that reduces/eliminate diffuse water pollution sources from agriculture.
- Commitment towards LDN: It is assumed that the government will implement integrated land use planning needed to advance towards LDN, efficient water use on irrigated farm areas that reduces the use of fertilizers and does not deplete soil productivity and efficient pasture/forest management plans that are compatible with LDN targets. And in this context, it is expected that the decision makers will formally approve the proposed LDN compliant ISLUPs, manuals and guidelines, demonstrated in prioritized Lake Sevan landscape, and as a result, the project experience could be replicated in coordination with other LDN initiatives (FAO) to support the national LDN targets.
- Interest and participation: Another assumption is that there will be sufficient interest and commitment from local farmers and producers to take up biodiversity friendly agricultural practices in production landscapes and commitment to supporting ecological corridors for safe migration of wildlife.
- Available financing: It is expected that the financial incentives will be available for the implementation of KPI agro-environmental payment scheme, followed by its integration with existing governmental programmes for a wider uptake of the demonstrated biodiversity sensitive SLM approaches.
- Institutional capacities: It is expected that the national institutions will have the capacity for effective biodiversity management and that the land use management institutions will be capacitated to integrate biodiversity spatial elements and LDN/SLM approaches within the land use planning.

Fig. 1. Theory of Change





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## IV. RESULTS AND PARTNERSHIPS

**62.** The **objective** of the project is to promote Land Degradation Neutrality (LDN), restore and improve the use of land and water resources in Armenia's Lake Sevan Basin to enhance the sustainability and resilience of livelihoods, biodiversity and globally significant ecosystems. The expected results of the project revolve around the Land Degradation Neutrality targets that will be set at two province level in Gegharkunik and Vayots Dzor, implemented in 6 merger/enlarged communities, through integrated spatial and land use planning (ISLUPs), expected to be scaled up to the entire Lake Sevan basin through leveraged partnerships and investments into nature positive agriculture practices. The project will aim at setting in motion SLM measures that includes LDN principles and mainstreams biodiversity and climate change considerations. Improved land use management will directly contribute to secured biodiversity status in Lake Sevan basin. First, at Sevan National Park, covering 147,456 ha of PA hosting significant biodiversity, expected to be strengthened through the project's support to improving the park's staff capacities and community outreach, work together with other donor funded projects and development partners. Secondly, the Key Biodiversity Areas (KBAs) and the Important Bird and Biodiversity Areas (IBAs) located outside the Lake Sevan National Park will be mapped and their spatial requirements mainstreamed in the integrated land use planning. Nature positive agricultural practices will be promoted around KBAs/IBAs that are expected to support better habitat connectivity and the ecological functionality of ecosystems to protect complex landscapes and link isolated biodiversity hotspots on approximately 150,000 ha of pastures and grasslands and 5,800 ha of forest ecosystems as well as 10,000 ha of farmed/partly irrigated areas that will, in time, be fully placed under improved management contributing therefore to the LDN national target. The project will place a central focus on local communities, directly benefiting 68,000 people, incentivizing them away from destructive agriculture and poaching and towards supporting ecosystem connectivity and wildlife migration eco-corridors, promoting eco-tourism and valorization of Sevan Ramsar area.

**63. Component 1:** *Promoting Land Degradation Neutrality in Lake Sevan Basin landscape to ensure productivity and ecological landscape resilience.* (GEF financing \$622,525; co-financing: \$6,224,662). This component will complement the Government of Armenia's efforts towards land degradation neutrality and will focus on the promotion of LDN-voluntary targets and compatible approaches in Lake Sevan landscape in two targeted regions (marzes): Gegharkunik and Vayots Dzor, through integrated land use planning that will contribute to land degradation neutrality and improved integration of key biodiversity into surrounding geographies. The UNDP/GEF project will contribute to the overall progress towards the National LDN Target by bringing 165,800 ha of landscape under LDN compatible sustainable land management practices in the Lake Sevan Basin through: (i) focusing at regional LDN target setting and implementation in Lake Sevan Basin landscape (ii) strengthening the inter-sectorial coordination for LDN at Lake Sevan landscape level (iii) coordinating closely with the existing similar LDN initiatives in order to establish monitoring and reporting mechanisms for LDN and exchange lessons learned and experience on LDN regional implementation and reporting from sub-national to national.

**64. Outcome 1.1** *Land Degradation Neutrality (LDN) in Gegharkunik and Vayots Dzor regions promoted through integrated multi-sectorial landscape approaches.* This outcome will be achieved by mapping land degradation trends and drivers, inclusive of gender differentiated analysis on how inequalities and gender imbalance contribute to land degradation, and assessment of its costs. This work will follow the recommendations from the UNCCD the Good Practice Guidance<sup>25</sup>, the use of the SDG 15.3.1 sub-indicators as means to measure and monitor compliance with voluntary LDN national targets. These sub-indicators are Land Cover Change, Land Productivity and Soil Organic Carbon (SOC; seen as a proxy for carbon stocks above and below ground). Definitions for Land Cover classes under the UNCCD guidelines fall under 7 simplified classes - 'Tree (covered), Grassland, Cropland, Wetland, Artificial land, other land, and Waterbody – which are also used in the Project. The LDN conceptual framework developed by Orr. et al (2017) has indicated the need for validation of the results and incorporation of local knowledge to offset remote sensing errors and ensure local objectives and needs are considered before basing decisions on the sub-indicator mapping results. The LDN mapping (initiated at PPG stage) will be validated at local level, LDN baseline and LDN targets will be established in targeted landscape in Gegharkunik and Vayots Dzor regions. This outcome has four outputs that will contribute towards LDN in Lake Sevan Basin landscape:

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<sup>25</sup> <https://www.sciencedirect.com/science/article/abs/pii/S1462901118305768>

**65. Output 1.1.1** *Land degradation trends assessed, LDN targets set-up and monitoring system developed for Gegharkunik (534,900 ha) and Vayots Dzor (230,800 ha) provinces, providing a framework to avoid, reduce and restore degraded land through integrated landscape planning.*

66. The LDN mapping results (PPG stage) for the two targeted regions has provided the relevant data and a general approach to mapping land degradation under the UNCCD endorsed Good Practice Guidance (GPG) developed for such a case with limited resources and capabilities. Trends seen in the mapping outputs include increases in Land Productivity, relatively stable Land Cover trends, some loss in SOC, with pockets of LD. In addition to determining the type of land degradation (LD) occurring in these areas, more data should be collected on the extent, rate and degree of LD occurring in selected project areas. Fire use or forest fires are also active according to the FIRMS database, though no correlation between this and the LD rates seem apparent. Further investigation is also needed on those areas showing important Land Productivity gains. Of special importance are the remote grasslands, especially as this relates to the question “Does the increasing productivity in these areas correlate to an increase in palatable plants and perennial grasses, or the increasing presence of invasive shrubs or woody species” and clarifying this aspect by ground truthing is especially important to establish sustainable management approaches to maintain these resources and the ecosystem services they provide. The LDN mapping also seem to show trends of degradation that are equally spread among the Tree, Grassland and Cropland land covers in the selected areas that were in the upper sections of river sub-catchments. While climate change may explain some changes seen, given a hypothetical reduction in precipitation or snow cover, the type of land management must also be considered as a driver.

67. The project’s work under this output will comprise several steps (*further detailed under Annex 18*):

- *Setting the Baseline* will include Stakeholders engagement land degradation assessments. The project will set up the technical *LDN Stakeholder Working Group* for the LDN baseline collection, technical assessments and LDN target setting and trainings under each region’s Governor supervision. The **LDN Stakeholder Working Group (LDN SWG)** will coordinate its work with the **Integrated Spatial and Land Use Planning Marz Committee (ISLUP MC)**, to be set-up under Output 1.1.2. The LDN SWG and ISLUP MC will consist of Ministry of Economic (Agriculture), Ministry of Environment, Ministry of Territorial Administration and Infrastructure, State Committee of Real Estate Cadastre, Forest Committee and Local Forestry’s, region/marz authorities, local communities’ representatives, farmers (individual farmers and representatives of cooperatives), women groups.
- *Establishing a mechanism for neutrality* will include hiring a team of local and international LDN experts soil specialist and GIS expert to support the LDN Working Groups conduct assessments of land degradation trends and identification of drivers behind the land degradation and associated costs using the Economics of Land Degradation approaches<sup>26</sup>. In addition, the project will define the LDN targets in the two regions.
- *LDN Planning and Implementation* will include mainstreaming LDN in land use planning and identification of SLM measures to achieve LDN (linked with work under Component 3). This phase will establish the LDN compatible land use planning approaches to achieve the LDN targets at the region level. The LDN Technical working group, with the support of soil and land-use specialists and GIS experts will also identify several “*LDN hot spots*” to be prioritized for further action in the Lake Sevan landscape and inform work under other outputs (Output 3.1.1; Output 3.1.2; Output 3.1.3; Output 3.1.4).
- *Enable and Monitor Neutrality* will include the facilitation of actions towards achieving LDN and monitoring LDN progress. The project will disseminate results and demonstrated LDN benefits and encouraging LDN investments, using LDN as a mean to scale in and scale out SLM measures. The project will coordinate with GEF/FAO LDN project in order to harmonize approaches in setting LDN sub-national targets and operationalizing a national institutional mechanism for LDN monitoring (integrated with the Land use Cadaster) and reporting LDN progress from sub-national to national level, and sharing knowledge, good practices and organizing join training and awareness events for local and national authorities and local natural resource users.
- *South-South cooperation* in addition, the project will support South-South cooperation and exchange of knowledge between countries in the region dealing with similar climatic conditions and discuss best practices in establishing subnational/regional level LDN targets. To support wider outreach the project

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<sup>26</sup> [www.eld-initiative.org](http://www.eld-initiative.org)

will organize and facilitate a regional workshop with other countries in the region, providing a platform to analyze and share the project's results and approaches on LDN compatible integrated water-land use and using LUP4LDN tool, and discuss the challenges and opportunities of LDN target setting at subnational levels, showcasing Armenia's experience and other countries' experiences with institutional mechanisms linking subnational and national tiers of monitoring and reporting LDN progress within the wider SDG Agenda. The project will leverage UNDP's regional and global expertise and will also reach out to international LDN experts, representatives of UNCCD, the Global Mechanism and LDN Target Setting Programme who will be invited to hold presentations. Furthermore, the project specialists under the coordination of the International LDN Expert and the International Land Use Planning Expert will develop a Manual with guidelines for establishing LDN subnational targets and how to include these targets into districts integrated land use planning, encompassing the knowledge generated by the project. The project will submit the *Manual* for formal approval to Ministry of Territorial Development and to the regional authorities (governors) of the targeted regions in Lake Sevan Basin and will be included in the institutional land use planning procedures. It is expected that through these Manuals the project results will be replicated in other regions as well.

**68. Output 1.1.2 LDN compatible Integrated Spatial and Land-use Plans (ISLUPs) informed by climate change vulnerability, Economics of Land Degradation (ELD) and biodiversity values in prioritized communities**

**69.** Under this output the project will support local authorities at community level (Local Self Government LSG) to develop Integrated Spatial Land Use Plans (ISLUPs) aligned with the LDN principle of *avoiding-reducing-restoring* land degradation in six targeted communities: Martuni, Vardenis, Shogakat communities (Gegharkunik region) and Vayk, Jermuk, Yeghegis communities (in Vayots Dzor region). These are enlarged communities formed because of a recent local amalgamation process as per a 2021 legal amendment on the Law on Administrative Territorial Division of the Republic of Armenia (adopted in 1995), which had initiated the administrative reform aimed at streamlining and empowering local self-government system (LSG) in Armenia. The selection of the project-supported communities is detailed under *Annex 16 Target Project Landscape*. The LSG representatives of the selected communities have welcomed the project's support with the land use planning, trainings and guidance towards sustainable land management practices, as they are new amalgamated settlements that are yet to establish their local development and land use planning strategies.

**70.** The project will develop the ISLUPs with the support of the UNCCD-endorsed "LUP4LDN" (Land Use Planning for Land Degradation Neutrality) software which integrates LDN into participatory land use planning via an interface that allows users to evaluate land use and land management transition scenarios, providing visual and quantitative representation of land degradation gains and losses. LUP4LDN supports users to answer *where* is most crucial to focus land restoration efforts and *what* sustainable land management (SLM) interventions are optimal and feasible to achieve LDN. Placing LDN at the centre of land use planning can be challenging, as it was reported by the UNCCD Science-Policy Interface (SPI)<sup>27</sup>, in that "limited national progress is evident when it comes to establishing effective integrated land use planning systems and embedding neutrality mechanism into them". Targeted trainings and use of digital tools and new innovative software such as LUP4LDN will be offered by the project to support LDN compatible integrated land use and spatial planning in Armenia. Remote sensing to monitor carbon and realization of carbon maps (based on the calibration of existing carbon maps developed for Europe) to be used for LUP4LDN will be also explored. The Regional workshop organized under Output 1.1.1 will discuss LUP4LDN and will share Armenia's and other countries' experience in using LDN compatible ISLUPS supported by LUP4LDN tool.

**71.** The project will hire technical experts and a specialized firm (to support GIS analysis and spatial and land use planning) to support local authorities develop integrated spatial and land use plans (ISLUPs) in the six recently enlarged communities. The Integrated Spatial and Land Use Plans (ISLUPs) have the potential to integrate the three interdependent dimensions of sustainable development namely economic, social and environmental and will act as a coordinating instrument across sectoral interests and policies. For example, with integrated spatial planning the local government authorities will know how to allocate land for different uses based on LDN and sustainability principles, considering that these communities are newly formed after the local amalgamation process.

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<sup>27</sup>[https://knowledge.unccd.int/sites/default/files/2019-08/UNCCD\\_SPI\\_2019\\_Report\\_1.2.pdf](https://knowledge.unccd.int/sites/default/files/2019-08/UNCCD_SPI_2019_Report_1.2.pdf)

72. The following steps are recommended:

- Setting up Integrated Spatial and Land Use Planning (ISLUP) Committees at each community level in the six targeted communities with representatives of the Local Self Government (LSG), farmers associations, Water Users Associations, local NGO and women groups, and experts hired by the project (technical land use planning, agronomists and forest engineers, biodiversity, livelihoods and gender specialists). The region/marz Governor or a representative marz authorities may also be part of this ISLUP Committee at the local community level, where the project will support the preparation of ISLUPs.
- Training on Integrated Spatial Planning and LDN as well as sustainable land management (SLM) approaches and ELD concept and its use in the integrated land use planning. This step is important to prepare the local authorities and capacitate them to understand the principles of spatial and land use planning and what Land Degradation Neutrality (LDN) stands for and how can be applied to land use management. The targeted capacity building for LSG representatives will also include distinct sessions and tutorials on how to use the LUP4LDN software. The project will also support the local authorities of the selected communities acquire the necessary equipment and skills for using LUP4LDN and spatial land use planning. (Training activities captured under Output 1.1.4).
- Development of a set of methodologies and criteria for the assessment of arable (irrigated and non-irrigated land), ecosystem services and rate and degree of land degradation aligned with LDN principles and ELD concept.
- Data collection and identification of land and water resources (climate; landforms and soils; land cover; water resources) in the pilot districts considering geo-climatic conditions, natural ecosystems, natural and anthropogenic processes (e.g. areas vulnerable to/impacted by degradation, water and wind erosion, fire, loss of humus content etc) and socio-economic (e.g. population, including age and gender distribution, assessments on linkages between land use types and role sand responsibilities of women, gaps in women participation in decisions on land use and land management, settlements and current economic activities, access to markets etc.). The project experts working under this output will work together with the project specialists that are carrying out flora and fauna inventories outside Lake Sevan PA under Output 2.2.1 in order to map out “biodiversity hotspots” and include the necessary protection measures into the ISLUPs.
- Identification of the land potential and spatial assignment of appropriate land use types and practices using participatory planning methods that considers the needs of all the stakeholders, differentiated needs of men and women, and participation of vulnerable groups, local knowledge and development priorities in the communities and villages. At this stage, different project expert teams (working to support different outputs) will work together. The multi-disciplinary teams of experts will assess the climate change vulnerability and will conduct a climate risk screening, potential impacts of different land use options, the assessment of land degradation trends and intensity within each land use type at district level (e.g. pastures/rangelands, forests, irrigated areas) and will identify potential counterbalancing measures within each land use type. LUP4LDN will be piloted to support the identification of appropriate SLM measures and links with the World Overview of Conservation Approaches and Technologies (WOCAT) tools<sup>28</sup>. The WOCAT database is the recommended by the UNCCD as the most appropriate source of contextually adapted SLM technologies and management approaches. The Economics of Land Degradation approach will be used to assess the costs of LD and benefits of SLM.
- Matching identified functional zones with economic priorities of the amalgamated community and the rural settlements in order to determine appropriate economic activities and scale for each land unit that will not deplete soil resources and will maintain integrity of ecosystems and ensure productivity for agricultural lands in the long term, reconciling different land and natural resources needs among multiple users. For the communities situated within the Sevan National Park the project will organize the Process Framework as per the UNDP SES requirements (please see Annex 8 Stakeholders Engagement Plan for more details on the Process framework).
- Development of an *LDN compatible GIS based Land Use Concept*<sup>29</sup> and its dissemination to relevant government bodies. The planning document will contain guidelines (including GIS based maps) for different types of land use planning, aligned with the LDN response hierarchy, with the development priorities at

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<sup>28</sup> [World Overview of Conservation Approaches and Technologies \(WOCAT\)](#)

<sup>29</sup> The LDN compatible GIS based land use Concept will include landscape (natural and cultural), soil, wildlife, biome maps. Each map will include categories of importance (high, medium, low value) along with sensitivity analysis. The land use concept will balance development priorities (economic and social) with conservation objectives in the area given the current status of ecosystems (habitat status, degree of degradation and sensitivity, available ecosystem services).

district level and at local rural settlements level and the potential for ecosystems impact. The Guidelines document will be based on the experience generated during the land degradation assessments.

- Development of GIS supported Spatial Integrated Land Use Plans for the targeted communities, based on the methodologies and GIS Land Use Concept described above, and the analyses under the steps above. The software LUP4LDN will be used for the development of the ISLUPs if feasible. Using the LUP4LDN software will also help in identifying the adequate SLM measures for each land use type (e.g., pastures, arable land, forests) that needs to be implemented in order to achieve land degradation neutrality (i.e. these SLM measures will be implemented according to the LDN principle/counterbalancing mechanism, that seeks to ensure that overall there will be no further advancement of land degradation at targeted community level).
- Integration of land-use planning results into the schemes for rational use of land resources in the rural areas.
- Assessment of the alignment with LDN principles and lessons learned, summarized to inform the next cycle of land use planning at community and village levels in the targeted communities.
- A monitoring and enforcement system for ISLUPs and the spatial and land use planning will be put in place, providing land inspectors with protocols to monitor LDN compatible ISLUPs. The project's land use experts will work with the Ministry of Territorial Administration and Infrastructure to clarify the roles and responsibilities of the government institutions involved in territorial planning and enforcement. The system will have sanctions attached, based on the current Land Code and RA Law on Control over Use and Protection of Lands and the rules for rational land use, specifically the section on increasing soil fertility and environmental protection, and land use noncompliance.
- Formal approval of the ISLUPs by the Region/Marz Governor and ISLUP implementation decision cascading down to the LSG. This is an important step that will ensure operationalisation of the ISLUP at local community level, increasing chances that LDN compatible integrated land use planning will be actually implemented. After approval of ISLUPs, the plans become mandatory to all land users. The project will hold a series of capacity building workshops to train target groups at region/marz and local levels (under Output 1.1.4) on the comprehensive LDN compatible land use planning, effective coordination, and enforcement. The project will summarise the results of the targeted district-level spatial and land use planning exercise and will produce a "Manual with Guidelines on LDN compatible Integrated Land Use Planning at" for replication and scaling up.

**73.** The project will apply screening and targeted assessments (including climate-related risks and vulnerabilities) and site-specific screening in selected areas, to identify, prevent and mitigate potential economic displacement and negative impact on the critical habitats. Potential conflicts among different land-users and between land users and ecosystems will be assessed and measures to mitigate or eliminate such potential or existing conflicts, will be agreed with stakeholders, and included in the respective plans. If confirmed, the risk of economic displacement will be managed by integrating all elements of a Livelihood Action Plan into the respective plan for the given site.

**74. Output 1.1.3** *Inter-sectoral coordination strengthened to oversee regional LDN target setting and implementation, gender -sensitive integrated land use planning and strengthened environmental governance in Lake Sevan Basin landscape*

**75.** The work under this output will strengthen the inter-sectoral coordination for LDN and integrated landscape planning first at region/marz level. Secondly, the project will support the Local Self-Government (LSG) in the targeted municipalities to oversee LDN target setting and implementation through integrated landscape planning. Finally, the project will support an improvement of institutional capacities for the cross-sectoral policy making and institutional coordination and integration of different approaches in Lake Sevan Basin such as the LDN/SLM integrated landscape approach with the river basin management (IWRM). The work will be closely coordinated with similar initiatives of other development partners (FAO, GIZ).

**76.** The project does not intend to create a new coordinating mechanism for LDN and integrated land use planning at regional/local levels. Instead, it will aim at clarifying mandates and building capacities of the existing region/marz governing structure i.e. the Governor of the respective province who will facilitate the coordination and cross-sectoral policy work; representative institutions at regional level subordinated to the Ministry of Territorial Administration and Infrastructure, and agencies subordinated to the Ministry of Environment including PA managers; as well as the local self-government structures in the targeted municipalities. The

administrative power at province/region (marz) level is derived directly from the state, with the governor implementing the territorial policy of the national government in the regions and supervising activities of the local governments, ensuring the link between state policies and local policies and ensuring horizontal coordination and support to cross-sectoral policies. In this regard, the project will support the governor/regional administrations to oversee the implementation of the provisions of the Governmental Decree N725 (May 2021) which approves LDN National Target for Armenia and establishes the National LDN Programme. Under article 12 the Government Decree highlights the mandatory “cross sectoral cooperation and flow of resources to achieve LDN” enlisting provisions for different sectors’ involvement in achieving LDN targets. To achieve the goal of combating desertification and LDN in Armenia the Article 19 of the same Decree assigns the Ministries of Environment, Economy, Territorial Administration and Infrastructure, Education, Science, Culture and Sports to bear the main role and responsibilities for execution of listed measures. To operate effectively, the same officials who are responsible for LDN will be involved in the composition of the Inter-Ministerial Committee on Lake Sevan, or otherwise it is necessary to use a close coordination mechanism between the Committee and the responsible institutions of the LDN.

**77.** The project’s capacity building (under Output 1.1.4) will capacitate the regional and local authorities and will strengthen the technical knowledge for regional LDN target setting/implementation, integrated land use planning, LDN monitoring and reporting from sub-national to national level, and will strengthen skills of managing technical assistance, coordination with donors and project management. The UNDP project will also learn from FAO project “*Implementation of Armenia’s LDN commitments through sustainable land management and restoration of degraded landscapes*” experience with the regional/local coordinating mechanisms for LDN implementation in Lori and Syunik regions.

**78.** Secondly, the UNDP/GEF project will closely coordinate with UNDP EU4Sevan Project to improve technical capacities for the cross sectoral coordination in Lake Sevan Basin landscape. Currently, the EU4Sevan Project is aiming at re-establishing the **former Inter-sectorial Sevan Committee** (inoperative since 2018). According to the Executive Order NK-234-N of the President of the Republic of Armenia “On the establishment of the Lake Sevan problems committee” issued in December 2008, the Intersectoral Committee was established under the mandate of the President of Armenia at that time. Armenia was a semi-Presidential country before 2018, and nowadays had transitioned to a Parliamentarian country. And this is the reason for which the above Order was terminated in March 2018, due to the political changes. As a result, the Inter-sectorial committee on lake Sevan became inoperative.

**79.** At the time of its establishment this committee was chaired by the Executive Director of the Republic of Armenia Forest Restoration and Development Fund and was composed of 23 members representing the Chairs of Standing Committees of the Parliament, line Ministries (Environment, Agriculture, Energy/Natural Resources, Territorial Administration, Justice, Transport/Communication, Finance, Urban Construction), State Water Committee, State Cadaster, Chief State Sanitary Officer, Academia. NGOs. The **Sevan Scientific Expert Commission** (which was a sub-commission of the Sevan Committee, as per the Lake Sevan Law) continued its function as an advisory scientific body focused on freshwater issues. The EU4Sevan Project is therefore aiming at making this Inter-sectorial Committee operational again by amending the relevant legal/regulatory framework that governs lake Sevan.

**80.** The UNDP GEF project will coordinate with EU4Sevan project, and will complement this efforts and it will support the technical capacity of the newly re-established **Inter-sectorial Committee** and will strengthen its members understanding and technical capacities for the implementation of LDN compatible integrated approaches harmonized with river basin approaches, with particular focus on: (i) LDN compliant integrated spatial/land use planning approach and UNCCD commitments (ii) Integrated Water Resource Management (IWRM) in the Lake Sevan Basin; (iii) The post 2020 Global Biodiversity Framework (GBF) and national priorities under NBSAP (iv) The commitments under UNFCCC Paris Agreement, and national priorities under National Determined Contributions (NDC) and National Adaptation Plan (NAP); (v) Integrated policy making for LDN compatible, climate resilience, gender sensitive and inclusive Nature based solutions in Lake Sevan Basin.

**81.** The Sevan Inter-Sectoral Committee membership will include representatives of the following institutions: the Ministry of Environment which has the mandate over natural resources protection and hosts UNCBD, UNCCD, UNFCCC convention focal points; the Ministry of Economy which is responsible for agricultural sector; the Ministry of Territorial Administration and Infrastructure which is in charge of local governance and



infrastructure; the Water Committee – as a public agency under the Ministry of Territorial Administration and Infrastructure, which develops and implements the policy of the government regarding the management and use of state owned water resources and their management systems; the Hydrometeorological and Monitoring Center (under the mandate of the Ministry of Environment); the National Academy of Sciences; the Sevan National Park authority; the Gegharkunik Regional Administration and Vayots Dzor Governors (Regional Administration); NGOs; Water Users Associations and Pasture Users Associations; private sector such as tourism operators.

**82. Output 1.1.4** *Capacity building programme for regional and local authorities, natural resources users on LDN, SLM and methodologies for land use planning informed by ELD concept.*

**83.** Under this output, the capacities of regional branches of the Government institutions at regional level and local self-governing governments (LSG) in the selected communities and villages will be strengthened through development and delivery of targeted capacity building modules on LDN and LDN based Integrated Land Use Planning, SLM and ELD concept, as well as methodologies on data collection for LDN baseline and LDN progress monitoring in collaboration with GEF FAO “Implementation of Armenia’s LDN commitments through sustainable land management and restoration of degraded landscapes” Project. The training topics will be determined by a Training Needs Assessment (TNA) to be developed at the inception stage. Importantly, the project will also assess capacities at different levels to also absorb the technical assistance provided by different development agencies and donors, targeting capacity gaps and enhancing project management skills and inter-sectoral coordination. The training material will include dedicated gender section that integrates relevant gender dimensions outlined in the UNCCD Manual for Gender responsive Land Degradation Neutrality Transformative projects and Programmes<sup>30</sup>.

**84.** The recommended topics are the following:

- Development and delivery of the LDN module for decision makers and practitioners tailored for the needs of achieving LDN focusing on linking LDN national targets and indicators with LDN specific sub-national targets and indicators and requirements to achieve. This activity will include coordination with GEF/FAO LDN project to pull together resources and develop and deliver LDN training, harmonizing training materials on topics such as (i) LDN target setting (LDN methodology; LDN default indicators and additional indicators; LDN progress: monitoring and reporting); Implementing LDN: enabling environment needed for LDN implementation; LDN integration into land use planning; LDN metrics and integration with the national system and reporting mechanism; Training on analysis of remote sensing imagery within the context of LDN target setting to inform national and regional land degradation assessments; Coaching on the use of national datasets. (ii) LDN and inter-sectoral policy making within the context of MEAs international commitments (UNCBD, UNCCD, UNFCCC) and the broader SDG agenda (iv) LDN Implementation through SLM on the ground and various SLM measures to achieve LDN.
- Training on using the LUP4LDN software with the support of UNCCD and SCIO Group (the LUP4LDN developer)<sup>31</sup> based on the lessons learned from piloting LUP4LDN in Tunisia and Burkina Faso<sup>32</sup>.
- Principles of integrated land use planning and training on ELD Initiative<sup>33</sup> and approaches for analysis of economics of land degradation (together with FAO/LDN Project).
- Training on proposal/project writing for the mobilization of funds for LDN compatible agriculture (in coordination with Outputs 3.1.1. 3.1.2).
- Trainings on technical assistance coordination, project management and donor reporting.
- Training on gender sensitive Sustainable Land Management (SLM) measures to achieve LDN (joint events with GEF FAO/LDN project and EU4Sevan Project).

**85.** The trainings will focus on improving coordination between biodiversity/environmental related institutions and land use/spatial planning-related institutions and the audience will be gender balanced, the project will strive to promote at least 50% women participation in all the project activities. In addition, a set of training sessions are envisaged for natural resource users including Water Users Associations (WUAs) from local targeted communities; Farmers associations and Cooperatives; Farmers National Union; Gegharkunik Region Farmers’

<sup>30</sup> [UN Women, Global Mechanism of The UNCCD and IUCN. 2019. A Manual For Gender-Responsive Land Degradation Neutrality Transformative Projects and Programmes](#)

<sup>31</sup> <https://www.geo-ldn.org/winner>

<sup>32</sup> <https://www.wocat.net/en/projects-and-countries/projects/land-use-planning-land-degradation-neutrality-lup4ldn>

<sup>33</sup> [www.eld-initiative.org](http://www.eld-initiative.org)

Council, local NGOs and Women groups (trainings for natural resource users at local level are captured under Output 4.1.1).

**86. Component 2** *Securing Biodiversity and critical habitats for Biodiversity Services as a baseline for non-deterioration of ecosystem services within Lake Sevan Basin* (GEF financing \$ 942,025 co-financing: \$ 13,176,576). The project will focus on addressing direct drivers of biodiversity degradation to protect globally important biodiversity, habitats, and species (please see Annex 19 for further details) . This component has two-pronged approach i.e. (i) focus on securing the ecological integrity of key species and valuable habitats within the PA/ the Lake Sevan National Park- anchoring the entire Lake Sevan Basin landscape under Outcome 2.1; and (ii) under Outcome 2.2, the project will target biodiversity values in the production landscape in the PA vicinity and support their integration within the landscape, therefore supporting the key ecosystem services on which local livelihoods depend.

**87. Outcome 2.1.** *Secured biodiversity status in Sevan National Park (147,456 ha) by strengthened PA capacity to better address the key threats to globally significant species and habitats within the main PA/KBA anchoring Lake Sevan landscape.*

**88. Output 2.1.1** *Improved management effectiveness of Sevan National Park through PA regime compliance and enforcement strengthened PA infrastructure, climate change sensitive integrated monitoring data base improved patrolling and enforcement capacity of environmental regulation, research and monitoring and species-focused conservation skills and capacities strengthened.* The UNDP/GEF project will coordinate its activities with the EU4Sevan project with UNDP Armenia and the GIZ, (EU4Sevan project is supporting the Sevan National Park to develop a new Management Plan). The consultations at the PPG stage with between Ministry of Environment, UNDP, WWF Armenia, GIZ and the Sevan PA staff, indicated that the UNDP GEF project is best positioned to support PA's capacity for the implementation the new Sevan National Park Management Plan such as: improved patrolling and regime compliance capacity, monitoring, conservation measures, fire prevention/management and trainings, community outreach. Cumulatively, these targeted actions are expected to support a better biodiversity monitoring and management that will contribute to a positive change in the population of globally important biodiversity (measured by the METT) and a better management of the Sevan Ramsar site, KBA/IBA. In addition, the project will support the Ministry of Environment assess the feasibility of opening a field office within the National Park premises to strengthen the institutional coordination and environmental monitoring.

#### **Monitoring, Regime Compliance and Community Outreach**

**89. *The GEF project will support the Sevan Park's monitoring facilities*** The GEF resources will be used to support incremental increase of the PA's capacity for biodiversity monitoring and research- currently outsourced to the Armenian Academy of Science, as the PA does not have a proper database and monitoring protocols of flora and fauna. The GEF project will coordinate activities with the EU4Sevan project (particularly with the UNDP implemented Component focused on developing the new Sevan National Park Management Plan) and will help the PA staff to build an integrated monitoring database and the necessary IT equipment, complemented by field guides to the species of Lake Sevan Basin landscape including publications based on IUCN best practice/guidelines and a comprehensive training programme of the staff.

**90.** Currently, the "Sevan National Park" State Non-commercial Organisation (SNCO) of the Ministry of Environment is the governing institution responsible for the protection of the National Park's ecosystems. The Park has a very limited monitoring activity, focused particularly on the Sevan lake's water quality and fish population. There is no integrated monitoring programme and data base in place, capable of generating GIS supported integrated reports on a multitude of inter-related biodiversity, socio-economic and climate change aspects, to inform optimal management decisions. To address this capacity constraint, the UNDP/GEF project will hire a specialized company for the development of an **integrated monitoring database** that provides clear monitoring metrics, conservation targets and monitoring protocols to measure change. With the support of an integrated monitoring data base, the overall monitoring activity will be expected to be guided by scientific principles to provide information into the ecological processes at work and point directly to if, when, and how an active management may need to be employed to prevent the loss of biodiversity. Through such specific management planning instruments, the project will offer concrete management solutions aimed at PA management response to the climate-induced and other emerging threats, to be further incorporated into the



monitoring programme and the PA management plan. The project will assist the National Park management with an incremental effort to incorporate integrated data into management decisions, including climate change adaptation scenarios and resilience measures to address the climate risks for vulnerable wetland and freshwater ecosystems, as well as fire risks to forest and grassland habitats. In addition, the project will support the Ministry of Environment assess the feasibility of opening a field office within the National Park premises to strengthen the institutional coordination and environmental monitoring.

**91.** *The project will further strengthen the patrolling of PAs* by facilitating inter-institutional agreements between the "Sevan National Park" State Non-commercial Organisation (SNCO) and local police in order to address illegal fishing in Lake Sevan, wildlife poaching, illegal natural resources harvesting (wood cutting included) and illegal grazing in a more coherent way. The project and PA staff will ensure that such agreements are fully aligned with the human rights-based approach. The project will also support the PA staff explore partnership opportunities with local community representatives, and their engagement in joint local anti-poaching schemes and will deliver targeted training and equipment upgrade to improve patrolling and regime compliance. The enforcement of regime compliance will likely have negative effects on the local communities. The GEF project will conduct screening and assessments as per UNDP SES requirements, and it will join efforts with the EU4Sevan project to conduct local consultations with the local communities related to the Park's zones, regime compliance and illegal activities. The project will support the EU4Sevan Project to deploy the Process framework aligned with the UNDP SES requirements (please see Annex 9 ESMF document) to ensure full participation of the local communities and identification of potential economic displacement because of the Management Plan (supported by the EU4Sevan) and the improvement of regime compliance. If the economic displacement is validated, a local Livelihood Action Plan and compensatory measures will be designed together with the EU4Sevan Project.

**92.** The project will facilitate regular meetings between PA managers, ranger patrol staff, communities, ecological inspectors, in and around the protected area to analyse trends in monitoring and legal compliance and collaboratively address ongoing threats. With the project support, the lessons learnt and best practices in the development of collaborative solutions that include full participation of local communities, and inter-institutional collaborations between PAs managers, ecological inspectors and border security will be developed and disseminated through the awareness and KM activities under Component 4. Regular working meetings between head of protected area and relevant department in the Ministry of Environment, Ministry of Territorial Administration and Infrastructure, Marzpetaran representatives and local authorities, inspectors, representatives of local communities and other stakeholders will be organized, aimed at discussing and exchanging ideas on the effectiveness of patrolling, possible ways of engaging local people in joint conservation and/or monitoring activities and keeping biodiversity values of the national borders intact. There is a critical need for protected areas to move away from the approach where local communities largely experience conservation efforts through law enforcement operations. Rather a combined approach of regulatory enforcement and support to communities' alternative revenue sources would probably prove more effective in fighting wildlife poaching, illegal fishing and illegal grazing. The project will support the PAs adoption of a more collaborative approach.

**93.** Illegal grazing is frequent in the PA areas which aren't demarcated on-the ground, as in case of "Lichk-Argichi" reserve zone, the "Gilli" and "Artanish" reserve zones, which are regularly grazed by cattle from the villages of Tsovak (2,300 inhabitants) and Geghamasar (1,100 inhabitants), and Shoghakat (1,100 inhabitants) and Artanish (760 inhabitants), respectively. The "Juniper Oak Woodlands" sanctuary is regularly grazed by small cattle from the villages of Jil (680 inhabitants), Tsapatagh (360 inhabitants), Pambak (550 inhabitants) and Daranak (190 inhabitants). Regulatory enforcement alone seems not to be effective. Illegal fishing is even more problematic, it involves approximately thousand people directly involved in fishery (both legal and illegal) and estimated 3-5 thousand people involved in fish business (fish smoking, caning, transportation, sale-resale, exporting). Apart from a better regime compliance the project will also assess opportunities to improve local communities' access to alternative revenue streams from sustainable land use management (SLM) measures, to take the pressure off the critical natural resources. The project will support local compensatory measures aimed at the bringing some alternative revenues to local families through grants (under Output 3.1.4).

**94.** *The project will support community outreach and involvement in inclusive biodiversity monitoring*, consisting of monitoring activities that will include schools, representatives of local communities, NGOs, in order to support the implementation of key species and habitat monitoring programs. With minimal investment, the

Park could involve schools in monitoring of water quality in tributaries of Lake Sevan as a habitat indicator for endemic fish species during the spawning period. Monitoring measures could refer to water quality biological indication using bottom invertebrates, which is a simple method (in most cases the identification of animals down to the family level is sufficient) and, under the guidance of a properly trained teacher, this basic monitoring can be carried out by pupils of secondary schools. The GIZ developed and published the *Manual for Training of Teachers in Riverine Ecology* with description of this method which could be used for these proposed activities. During the PPG field visits, the directors and teachers at the schools of town Martini and villages Shoghakat and Tsovak (Vardenis community) have shown a keen interest to participate in such activities. The Park's information centers will support community training programmes on the identification of key species and habitats in Sevan National Park. The project will, where practical, leverage technology such as mobile applications to support species identification and monitoring (for example the WWF Armenia-supported **Earth Beat** App). The PA staff will also explore partnership opportunities with local community representatives, and their engagement in joint local anti-poaching schemes.

**95.** The project will support the Park's infrastructure and upgrade of equipment for patrolling and fire prevention and management. GEF resources will be used to support the PA infrastructure through appropriate signage and demarcation of the territory and the zonation. The project will support the setting-up of 4 observation towers set-up in appropriate locations (to be determined during the project inception) to ensure maximum coverage of the key sites for monitoring of wildlife but also tracking fire hazards. The project will be supported by the SES experts, and will apply site-specific assessments aligned with UNDP SES requirements, and appropriately scoped ESIA to the selected sites where 4 observation towers will be constructed/erected, in order to identify, prevent and mitigate potential negative impacts on the critical habitats (as per the ESMF Annex 9).

**96.** In addition, the project will directly support activities in support to fire preparedness, prevention, and response within the Sevan National Park area. Fires are mostly observed in "Lichk-Argichi" reserve zone and in "Juniper Oak Woodlands" sanctuary. While in the case of the "Juniper Oak Forest" the juniper itself burns easily, in the "Lichk-Argichi" reserve zone and surroundings the main cause of fire is a large amount of deadwood and litter and the recklessness of tourists barbecuing in the park area. Combating fire in "Lichk-Argichi" reserve zone, as well as in "Gilli" reserve zone and "Gavaraget" sanctuary zones is difficult, since firebreak roads in forest plantations are overgrown with sea buckthorn bushes, fire engines often cannot come close to the fire.

**97.** The project will support the development of a Forest Management Action Plan with priority prevention measures and annual dedicated forest fire management capacity building sessions. The project will apply UNDP SES requirements during the firefighting capacity building sessions and will use the existing best practices and regulated processes according to the national legislation. The fire-fighting trainings will be organized jointly with the Ministry of Emergency Situation's experts from the Fire and Rescue Squad. The GEF resources will be used to also equip the National Park with fire prevention/management hand tools such as: fire swatters and backpack fire pumps suitable for smothering and extinguishing fires; brush hooks designed to effectively remove surface and ladder fuels, quick-assemble and collapsible water tanks and weather meters that will help the assessment of weather conditions and wind speed. A number of 10 full sets of protective firefighting uniforms will be also provided. The Project will facilitate an inter-institutional agreement between the Ministry of Environment, the Park Management, and the Ministry of Emergency Situation for a rapid dispatch of the fire unit from the Fire and Rescue Squad of Region Rescue Department of the Rescue Service in case of fire hazards and the organization of joint bespoke training sessions for the PA staff and local volunteers.

**98.** The delineation of the PA on the ground will be accompanied by signs and information boards along the boundaries of the protected area with the required information about Parks flora, fauna. The project will work with the Academy of Science Institute of Zoology and NGOs to create and install info-boards/signage about the key biodiversity values of the KBAs, IBAs, Important Plant Areas, nature reserves and wildlife sanctuaries within and Park perimeter. Dedicated info-boards with fire prevention guidelines will be set up in specific locations (to be determined at the project inception) especially around reserves and in the areas where it is known that tourists are camping and barbecuing and in other places local communities are burning vegetable waste. The information boards will disseminate awareness and safety warnings regarding the potential fire hazards and negative impact within the park zone and buffer areas. Complementary awareness and trainings sessions with local communities will also strengthen the fire prevention efforts.

99. The PAs staff will also be equipped with operational IT equipment, GIS devices and field equipment (binoculars, camera traps, mobile communication devices; GPS navigators, 2 basic drones for wildlife monitoring, Sevan field species guides); power sources, generators, full sets of basic field equipment for Park rangers and 2 ATVs.

#### **Trainings for PA**

100. A major capacity constraint is represented by the limited technical capacities of the PA and lack of training opportunities, to provide for adequate conservation and management of the Lake Sevan and other KBA/IBA and reserves (biodiversity critical habitats) included within the Sevan National Park. In addition, there appears to be a general lack of business-oriented approach to the planning management of the protected area. The **METT** capacity scorecard completed during the PPG by Sevan National Park staff shows some identifiable patterns of strengths and weaknesses. In general, issues related to the protected area legal establishment, zonation, regular workplan and resource inventory are undertaken (as in most protected areas) to an acceptable standard (although significant gaps persist), and it is perceived as covering a basic minimum for the achievement of the conservation objective. IN case of Sevan National Park, a significant gap is related to the biodiversity inventory and monitoring, which is outsourced. The management of the National Park tend to focus more on lake Sevan itself (lacustrine ecosystem) and littoral area, less on the rest of the PA landscape and management of the wildlife sanctuaries and reserves (all of which are completely covered by Sevan Ramsar area). Activities related to PA research and monitoring, and enforcement of legal provisions, are less often undertaken and are also less effective considering the complexity of the Sevan National Park landscape and the inter-related drivers of threats to biodiversity.

101. In order to respond to these capacity gaps, the project will hire specialised expertise (an NGO or consortium) to design and deliver tailored training sessions to the park staff also with the participation of the environmental inspectors, local police officers, relevant staff from the Ministry of Environment and local authorities. The dedicated trainings will improve the Sevan National Park capacity to implement the Management Plan and deliver on its mandate. The project will build on the training modules and lessons learned under previous GEF initiatives<sup>34</sup>. The main activities will include:

- Design, development (including materials developed under previous GEF projects) and implementation of a comprehensive patrol training programme (including patrol planning, mapping, GPS technology, data collection, animal and plant identification, search and arrest, use of firearms, human rights, and interaction with local communities; communication, first aid, physical strength, legislation etc). The training will include a specific module for PA rangers and “wildlife community caretakers” (community representatives volunteering and incentivized to participate in wildlife patrolling and monitoring) in order to strengthen understanding on community rights and needs and ways to engage with local communities; respect to human rights and empowering communities to manage and protect wildlife and critical habitats.
- The project will implement **9 capacity building events for PA** (3 trainings/year for 1<sup>st</sup> and 2<sup>nd</sup> year and 1 training for each of the remaining years of the project (year 3,4,5) targeting environmental inspectors, PA rangers, “wildlife community caretakers” and local police officers. Training topics will be identified based on the Training Needs Assessment. Dedicated modules on **PAs financial management** and PA business opportunities including local communities will be part of the trainings of PA managers and financial officers.
- The meetings held at PPG stage with WWF Armenia and PA managers highlighted the need for targeted PA research and monitoring especially due to the lack of the technical expertise within the current personnel and due to high staff turnover. To respond to this need, the project will support strengthening of the research and monitoring capabilities of the staff and support to **the organization of 2 training workshops per year dedicated on Climate sensitive Biodiversity and flora and fauna monitoring** to ensure that all staff working in Sevan National Park have a good understanding of the area, its functions, biodiversity conservation and planning, climate change impact on biodiversity and migration patterns; community engagement and ways of working with, PA contextualisation in the surrounding geographies and development of ecological corridors with community support. The project will ensure that PA staff wildlife community caretakers (involved in wildlife monitoring) have access to online learning materials, will translate key materials (e.g. IUCN good practice guidance) into national language and will ensure that visiting experts and consultants share their skills and knowledge when they work in protected areas. Dedicated Data base tutorial/modules on how to use the Integrated monitoring data base that will be developed by the GEF project, as well as

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<sup>34</sup> PIMS 3986 “Developing the Protected Areas of Armenia”

monitoring metrics, conservation targets and monitoring protocols to measure change will be delivered to the park staff tasked with monitoring and research.

### **Support to restoration and conservation of the endemic fish spawning grounds**

**102.** Building upon synergies with other on-going initiatives notably EU4Sevan project and in coordination with the Ministry of Environment and the Foundation for Restoration of Sevan Trout Stock and Development for Aquaculture the project will also contribute to distinct measures to restore or conserve spawning grounds of endemic fish species such as the *Capoeta sevangi* and *Barbus lacerta goktschaicus*, *Salmo ischchan*, *Salmo gegarkuni*, *Salmo danilewski*. Currently, the following main fish species are found in Sevan National Park: Gegharkunik (*Salmo ischchan gegarkuni*) (CR), Summer trout (*Salmo ischchan aestivalis*) (CR), Whitefish (*Coregonus lavaretus*), *Capoeta sevangi* (VU); *Barbus lacerta goktschaicus* (VU), Silver carp (*Carassius auratus gibelio*). The *Alburnoides eichwaldii*, *Pseudorasbora parva*, and *Cyprinus carpio* are found in small numbers regularly.

- First, the project will support an assessment of the ecological status of Sevan basin rivers (including climate change vulnerability assessment) which represent the spawning grounds for key fish species in Lake Sevan. At the suggestion of the Sevan Trout Foundation, the assessment of invasive alien species risk coming from aquaculture and its impact on the ichthyofauna will be considered and complemented by recommendations and risk management measures. Based on the conclusions of this assessment, priority conservation/restoration measures of important fish spawning grounds and critical wetland areas will be identified as well as potential regulatory amendments that may be necessary in order to enable restoration measures. Sevan basin rivers which represent the spawning grounds for endemic fish species are the following (counter-clockwise from northernmost tributary): Dzknaget, Gavaraget, Tsakqar, Argichi, Lichk, Vardenik, Karchaghbyur-Makenis and Masrik. All of them lost their significance as spawning grounds for endemic fish species due to pollution, uncontrolled water intake, construction of small hydropower plans (SHPP) and reservoirs. As a result, the maintenance of the population of Sevan Trout in the lake is exclusively due to artificial reproduction (ca. 17 thousand fries in 2021, instead of planned 20 million<sup>35</sup>), and the populations of other endemics (*Capoeta capoea sevangi*, and *Barbus goktchaikus*) are on the verge of extinction. The restoration of the spawning grounds in the tributaries of lake Sevan is the subject of a significant improvement in water quality, regulation of runoff, bringing the structures of fish passageways of SHPP and reservoirs into full compliance with the required standards.
- Second, the project will provide support to the Sevan National Park and the Ministry of Environment for the planning of *restoration of 1-2 prioritized freshwater habitats* based on the priority conservation and restoration measures highlighted by the above-mentioned assessment of the ecological status of Sevan basin rivers. **The GEF funds** will be used to hire a technical expert to identify and provide support and assistance for the concrete restoration projects of freshwater habitats, however the funding of the restoration measures should come from the State budget (as per annual allocated budget for Lake Sevan). Vulnerable wetland habitats situated around the lake Sevan are (counter-clock-wise): Frog Pond (31 ha, near town Sevan and outflow of the River Hrazdan), emergent, submerged and merged vegetation stands in Lchashen Cove (16 ha, near village Lchashen), laced swamp on the left side of the Sevan-Martuni highway (6 ha, near Lchashen), emergent, submerged and merged vegetation stands of Norashen reserve zone (3 patches total 7 ha), pond on old riverbed of Gavaraget (24 ha), Pond Lichk (25 ha in Lichk Argichi reserve), laced swamp in Artanish Cove (26 ha), as well as the “estuaries” of rivers Dzknaget, Tsakqar-Lichk, Argichi and Masrik. The selection of targeted wetland restoration area to be supported by the project will be done based on the above mention assessment conclusions, in coordination with the GIZ and EU4Sevan Project (building on their experience with wetlands rehabilitation), WWF Armenia experts and Ministry of Environment and Academy of Science, Lake Sevan Scientific Commission, and will also take into consideration the importance of the surrounding areas as nesting and feeding areas for globally important water birds.

### **Support to conservation measures of juniper open woodlands and globally important biodiversity within Sevan National Park**

**103.** The project, with the support of WWF Armenia, will support the National Park to establish a systematic monitoring plan of globally important biodiversity (the species below are selected as indicator species to be monitored with the support of the METT scorecard) and together with WWF Armenia and the Institute of

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<sup>35</sup> Annex 1 of the Government Decree of 13 December 2013 №1442,

Zoology (Academy of Science), the project will train the Park rangers and local community volunteers ( i.e. the “community caretakers”) on the monitoring protocols and implementation of distinct conservation measures inside and outside of the PA. The recommended actions are as follows:

**104. Bezoar Goat (*Capra aegagrus*) VU** This is a globally and nationally threatened species and the project will contribute to a positive change towards the ecological integrity of the population, by facilitating the extension of its habitat range from Vayots Dzor to Gegharkunik region. Historically bezoar goats inhabited the Eastern slopes (Artanish peninsula and Sevan range – Juniper open woodlands) in the Sevan Area, however nowadays due to habitat loss, fragmentation and poaching, this species is no longer spotted in Gegharkunik region. The species is a good indicator for the main ecosystems under the project scope including mountain meadows and juniper open woodland. It can be easily monitored using a double observation method by the park rangers (inside the PA) and communities’ caretakers/rangers (outside the PA). Based on their previous experience and technical capacities, the WWF Armenia will support the replication of “Community caretaker” approach and support trainings of the park rangers and participating communities caretakers group involved in Bezoar Goat monitoring. The following activities are recommended:

- Assessment of the habitat of the Bezoar Goat (as it was historically recorded) and potential suitable re-colonization habitat in Gegharkunik region.
- Based on the assessment, delineate key habitats for the project intervention.
- Introduction of systematic patrolling and monitoring system in the main habitats of bezoar goats inside of the Sevan NP (by the park rangers). It will include development and PA approval of patrolling and monitoring plans, training of rangers and monitoring and tracking equipment.
- Introduction of systematic patrolling system and monitoring system in the habitats of bezoar goats outside of the Sevan PA (by the caretakers/community rangers from the target communities- details under Output 2.2.1). This will include development and approval of patrolling and monitoring plans (by the communal municipality), rangers training, caretakers supported by relevant equipment.
- Rehabilitation of habitats of bezoar goats in juniper open woodland and Artanish peninsula. This step will include introduction of no grazing schemes in the habitats, introduction of sustainable grazing schemes in pastures owned by communities located in the vicinity of the main habitats, implementation of measures for natural regeneration of the juniper woodlands, plantation of juniper and oak species where it is necessary (in coordination with Output 3.1.1, 3.1.3).

Expected Result. Distribution of Bezoar Goat population and extension of its habitats from Vayots Dzor to Gegharkunik region due to the effective protection and restoration of high value ecosystems of juniper open woodland and high mountain meadows inside and outside of PAs.

**105. Steppe Viper (*Vipera (Pelias) eriwanensis*) VU.** This is a globally and nationally threatened species, a good indicator for the mountain meadows high value grasslands. Introduction of sustainable grazing schemes in the project area especially in the pastures (linked with Output 3.1.1) will result in an increase of population of Steppe Viper. The changes can be easily monitored using a dedicated monitoring protocol by the park rangers and communities’ caretakers/rangers. The Institute of Zoology will provide technical assistance during the project implementation and beyond it. The following activities are recommended:

- Assessment of habitats of Steppe Viper in Gegharkunik region.
- Based on the assessment, delineate key habitats for the project intervention.
- Introduction of systematic patrolling and monitoring system in the main habitats of Steppe Viper inside of the Sevan NP (park rangers).
- Introduction of systematic patrolling system and monitoring system in the habitats of Steppe Viper outside of the Sevan NP (caretakers/community rangers from the target communities).
- Introduction of sustainable grazing schemes in pastures owned by communities located in the vicinity of the main habitats.

Expected Result. Increase of Steppe Viper population in mountain meadows due to introduction of regular patrolling system as well as to introduction of sustainable grazing schemes in pastures.

**106. European Otter (*Lutra lutra*) NT:** This is a globally and nationally threatened species and the project will contribute to a positive change in the ecological integrity of population of European Otter. The species is a good indicator for the freshwater ecosystems and rivers system of the Sevan Basin. The monitoring protocols, trainings and technical assistance will be ensured by the Institute of Zoology. The recommended activities are largely the same as above namely: assessment of the habitat of the European Otter, delineation of these habitats using GIS supported analysis; introduction of systematic patrolling and monitoring system and involving

community “caretakers” groups. It is expected that these actions will support a positive change in the increase of the ecological integrity of the otter population, at the same time addressing the threats and drivers of their habitat degradation.

**107. European turtledove (*Streptopelia turtur*) VU:** This is a globally vulnerable and nationally threatened species, and the project will contribute to a positive change of its population through enforcement of protection regime in juniper open woodland. The species is a good indicator for juniper open woodlands habitat. It can be easily monitored using dedicated monitoring protocols that will be used by the park rangers and communities’ caretakers/rangers. The technical assistance will be provided by WWF Armenia. The interventions include dedicated field inventory and the introduction of a systematic monitoring and patrolling in the area based on an approved patrolling plan. This will support the rehabilitation of the juniper open woodlands habitats. The project will support local communities grazing their livestock in the area to find alternative grazing spots outside the juniper reserves (under Output 3.1.1).

**108. Juniper open woodlands:** The juniper open woodland is a critical habitat for many threatened species such as the Bezoar Goat, Brown Bear, Persian Leopard, Lynx etc. It is the most vulnerable forest ecosystem against the increasing climate change threat and negatively impacted by a range of anthropogenic pressures. The project will support assisted regeneration measures within the PA, within the surveyed bezoar Goat suitable habitat, for effective protection and rehabilitation of the juniper open woodlands in the Lake Sevan National Park, that will contribute to an increase of the population of the selected indicator species. The habitat monitoring is also included in the METT and the project will support the park rangers and communities’ caretakers/rangers to monitor the ecological integrity of this critical habitat under WWF Armenia’s guidance.

**109. Output 2.1.2 Business Plan and strengthened tourism infrastructure at Sevan National Park; Innovative financing mechanism of the Park’s biodiversity values; Public Private Partnerships for the valorization of Lake Sevan nature values.**

**110.** The UNDP GEF project will develop a Business Plan to improve Sevan National Park’s financial management. The total annual budget of the park allocated by the **Ministry of Environment is 120,300 USD with an additional 34,700 USD from other resources.** The discussions held at the PPG stage revealed that the currently available funding of the Park may be insufficient to cover basic management operations for example: (i) the currently used indicators describing the execution of the Sevan National Park SNCO objectives and projected indexes for budgetary lines are not clearly aligned; (ii) there are poor linkages between projected Park’s indicators and financial indicators, especially concerning revenues gained from economic activities which may be the cause of inefficient use of these resources (iii) the main part of the funds collected from nature use (fees for nature use, environmental fines, penalties, compensations) are not re-directed towards environmental/conservation measures within the park due to the lack of explicit linkage between conservation priorities and financial indicators.

**111.** The project will conduct a cost/benefit analysis and will support the PA to conduct results-based budgeting including: costing of operational and capital needs and assessment of cost-efficiency; budget management measures to ensure sustainable PA management financing identifying the revenue sources; development of mechanisms for income-generation and business opportunities related to rational use of resources; adapting the staffing tables and management plan to the scenario in which revenues are optimally matched with the cost needs etc. The project will hire a Senior PA Expert and an Environmental Economist to assess income generation business opportunities and draft the Business Plan, to include new revenue streams but also cost-effective measures to better use the existing budgetary allocations and funding. The Business plan will be based upon best international experience, and it will help with identifying potential economic opportunities, break down investment costs, examine potential markets, and provide instructions on how to develop and maintain sustainable biodiversity friendly businesses and engaging local entrepreneurs and communities. Targeted financial management trainings for senior management of the PA and relevant department of the Ministry of Environment will be delivered. The project will support the MoE to assess the feasibility of establishing a field office within the Lake Sevan National Park, in view of better coordination of biodiversity management and environmental monitoring activities among the ministry and the PA.

**112.** In addition, the park’s existing infrastructure will be strengthened, to attract tourists (and conduct low season guided tours to support valorisation of Sevan Ramsar site and landscape), researchers to promote key

biodiversity values of the Lake Sevan landscape and Ramsar site. The project will support the PA staff reach out to local communities for the development of eco-tourism routes for the valorization of Sevan Ramsar area, including the reserves and sanctuaries located within the national park for birds watching and trekking: Norashen Sanctuary, Litchi-Argichi Sanctuary, Gilli, Artanich, Gavaraget Sanctuaries. Options for valorization of eco-tourism potential in Sevan area (beyond lake Sevan resort) would be the organization of guided tours at the end of summer in cooperation with local community private B&B owners, providing for an extended tourist season. The tours could be arranged either on buses or minibuses or in the form of hiking or biking tours combined with boats for tours on the lake and could include visits to the surrounding monasteries and cultural heritage, combined with bird watching in the wetland areas around lake Sevan, and/or botanical tours through biodiversity rich Palearctic grasslands and mountain meadows. The tourist tours would include breaks for rest in local restaurants and households of local producers of wine and fish. The visits could be linked to traditional local wine festivals or local Armenian cuisine (e.g., Ecotourism Festival; Lavash Festival, Honey Festival, Cultural Arts and Crafts Festival, Gata Festival etc). The project will support the PAs capacity to organize such low season guided tours in coordination with grant making activities under Output 3.1.4 (aimed at helping local communities' participation in these tours). The project will work with WWF Armenia specialists and a range of different NGOs and companies involved in ecotourism.

**113.** In this regard, the project will support the strengthening of tourist trails, information boards for tourists and the Sevan Park Visitor/information Centre. The project will help to identify investment opportunities to fuel the implementation of the business plan and help to define the level of entry fees and tourist service costs so that they respond to the market and at the same time make a significant income that partially covers the maintenance cost. Public-private partnerships with municipal tourist organizations, tour operators and individual businesses in order will be explored to identify opportunities for the Sevan National Park's participation into post COVID-19 tourism recovery measures.

**114.** The PPG team has engaged with several tourism operators during the project development to explore further partnerships with the Sevan National Park (Gegharkunik region) and local communities in Vayots Dzor region and development of tailored eco-tourist packages and valorization of KBAs/IBAs involving the local communities. The project could explore other local tour operators as well during the implementation phase. Below some recommendations based on PPG team engagements:

- Hyur Service<sup>36</sup> deputy director Mariam Kosakyan expressed a distinct interest to expand the activities of their company in Gegharkunik region and partner with Sevan National Park. The team of Hyur Service has more than 100 professional and dedicated employees, more than 40 top level buses, minibuses and cars. Since 2018 Hyur Service has been publishing "I ♥ Armenia" free bilingual tourism hand magazine 6 times a year with an exceptional circulation of 60 000 copies. Hyur Service is ranked #1 on TripAdvisor World Tourism Mega Platform among all the objects of Armenia.
- One Way Tour<sup>37</sup> is the second one among 24 travel companies listed on [www.ranks.am](http://www.ranks.am). Established in 2011, One Way Tour is a rapidly growing tour operator organizing full-service tours to Armenia, Georgia and Nagorno-Karabakh. The company provides classic, sightseeing, adventure, special, winter tours, including elements of nature observation.
- The Time Tour is suggested for supporting local community eco-tourism in Vayots Dzor. Discussions with the founding director Shirak Mikayelan have been conducted during the PPG. The Time Tour owns a hotel equipped with 10 comfortable rooms, conference hall, restaurant with traditional cuisine and a top-level minibus. The hotel serves as a tourism information center for the Vayots Dzor Region and the tour operator is interested in conservation and protection of local nature and heritage monuments and expressed the readiness and willingness of the Time Tour in the development and organization of combined nature-heritage siteseeing and educational tours in the Vayots Dzor.
- The NGOs *Job and Homeland Territorial Development (Ruzan Ghazaryan)* and *Municipal Women Council of Martin (Anahit Gevorgyan)* expressed interest in engaging in supporting local eco-tourism routes involving local communities from the areas under the project focus in Sevan National Park and Vayots Dzor. These NGOs are supporting agro- and eco-tourism, environmental education, and assistance to the WWF Armenia in establishment of environmental corridors in Vayots Dzor.

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<sup>36</sup> <https://hyurservice.com/en>

<sup>37</sup> <https://onewaytour.com/>

**115.** Through the partnership with the Visitor Centre of the Sevan National Park the private tour operator has an opportunity to expand and diversify the standard tourist package and offer a unique experience to its clients, while promoting environmental awareness and care. The tourist package can include various elements of eco-tourism, respond to specific customer requests and requirements, offer a variety of products that will be in demand. There are many options and mechanisms for cooperation: valorisation **of the Sevan National Park Ramsar site** represents one area where a private sector supported program can be run to raise awareness of the Ramsar site values and of IBAs/KBAs values, as well as birding and camping opportunities through guides, booklets, support to the visitor centre, specifically tailored guided tours, learning activities, etc. Birdwatching in and around the National Park would be an amazing opportunity for those who travel in the low season, and a better awareness of the value and quality of this unique eco-tourism offer can be promoted by the hotels offering low season discounts. Valorisation efforts can include responsible tourism businesses and the PA to cross-market their websites so as to increase the number of short visits by business travellers. One important element for the private sector partner and the PA would be the nearby community involvement in valorisation, awareness rising, cleaning campaigns, guided travel support, etc (in coordination with Output 3.1.4). A PPP model could be developed for the area in cooperation with the private operator once the details are agreed and management arrangements are set.

**116.** In addition, the project will use GEF funds to organize an **Innovation Challenge**, aligned with UNDP procedures, to identify innovative financing mechanisms of Sevan National Park including the possibility of establishing a PA crowdfunding platform. The project will invite private sector and mobile phone operators and start-ups, IT companies etc. to participate in design and co-financing of innovative solutions to finance biodiversity values. The project will work with Sevan National Park administration and with WWF Armenia to identify the conservation targets (critical species and habitats) to be funded through a potential crowdfunding platform and raise awareness about the importance of these critical species and habitats in Sevan area and the conservation financing needs for the preservation of mountain ungulates, particularly the Bezoar Goat, and its predator the Caucasian Leopard.

**117. Outcome 2.2 Biodiversity conservation assessments and proposed arrangements in Lake Sevan landscape in place for the biodiversity hot spots outside the PA**

**118. Output 2.2.1 Key Biodiversity Areas (KBAs) and other biodiversity hotspots in Lake Sevan Basin landscape, situated outside the PA, identified, mapped, conservation status assessed, and climate sensitive conservation measures mainstreamed into the Integrated Spatial and Land Use Plans/ISLUPs (used as input into Outputs 1.1.2, 3.1.1 and 3.1.3) and ecological connectivity enhanced.**

**119.** Within **Output 2.2.1** the project will provide for the mapping and assessment of status of biodiversity hot-spots and elaboration of mechanisms for the protection of key biodiversity values that do not have a protection status. The project will provide targeted resources for the survey, inventory, and mapping of key biodiversity values within the zones of valuable and/or vulnerable biodiversity of the South East Lesser Caucasus Corridor in Gegharkunik and Vayots Dzor regions, complementing activities of the WWF Armenia Project *“Promotion of Eco-Corridors in the Southern Caucasus Phase II”*. The project will have a targeted focus on the inventory of biodiversity of Palearctic grasslands with identification of concrete spatial requirements to be introduced within ISLUPs and SLM management measures recommended for the implementation at local level, in order to preserve biodiversity and also to support progress towards LDN.

**a) Assessment of the status of KBAs/IBAs included in Sevan Basin landscape hosted by the two targeted regions Gegharkunik and Vayots Dzor**

**120.** The project will hire a team of specialists to carry out biodiversity inventories and assessments of the KBAs/IBAs and update/build on existing assessments and inventories. The main aim is ensuring that the PAs and non-PA sites with recognized BD values will be included in the ISLUPs in the selected communities, setting a precedent for replicating the biodiversity mainstreaming approach in spatial land use planning.

**121.** The biodiversity assessments and inventories will be complemented by climate vulnerability assessments, and these will serve as baseline studies (inputs) for the integrated spatial and land-use planning (ISLUPs) (Output 1.1.2), as well as for strengthening the knowledge base of Lake Sevan National Park (Output 2.1.3) and for community-based activities under Component 3.



**122.** The main KBAs and IBAs that are overlapping to some extent the State Sanctuaries with the same name are as follows: (i) Lake Sevan KBA/IBA and Ramsar site (IBA criteria A1, A4i, B1i); (ii) Sevan Ridge KBA; (iii) Gndasar KBA/IBA (IBA criteria B1iv, B2); (iv) Jermuk-Eghegis KBA including Jermuk IBA (IBA criteria A1, B2, B3) overlapping with Jermuk Sanctuaries; (v) Arpa KBA including Noravank IBA (IBA criteria A1, B2)

**123.** The project will conduct a mapping of biodiversity in Sevan Ridge, Gndasar, Jermuk-Eghegis, Arpa KBAs and related IBAs and State Sanctuaries (please see Annex 19 Biodiversity Baseline). Biodiversity inventories in Lake Sevan National Park will be conducted by the EU4Sevan project, and therefore close coordination is necessary to avoid potential overlapping. The project will also build on WWF Armenia work on mapping biodiversity important areas and Southeastern Lesser Caucasus Ecological Corridor. The clear GIS supported mapping and assessment of status of KBAs/IBAs and the consideration of the international values of Key Biodiversity Areas (KBAs)<sup>38</sup> will be analysed:

- habitat of significant importance to Critically Endangered and/or Endangered species;
- habitat of significant importance to endemic and/or restricted-range species;
- habitat supporting globally significant concentrations of migratory species and/or congregation species;
- highly threatened and/or unique ecosystems; and
- areas associated with key evolutionary processes.

**124.** The information generated by the biodiversity mapping and inventories will serve as the basis for planning of actions to ensure the continuity of the biodiversity elements for which the location is important and minimize the negative impacts of economic activities related to spatial planning and development. The project will also develop **Guidelines and Methodology for Mainstreaming Biodiversity in Spatial and Land Use Planning** based on the generated experience in Sevan Basin landscape, in order to ensure the country-wide replication of this approach i.e. mainstreaming of the spatial elements of KBAs/IBAs into ISLUPs). The main idea is to highlight the biodiversity rich areas in the ISLUPs, and therefore ensure that overall spatial and land use planning of selected communities will adequately reconcile between planned developments and biodiversity protection. In addition, the project will make sure that climate resilience and adaptation solutions are considered within the spatial development priorities for the areas that are vulnerable to and/or affected by climate change effects. Assessments of land use should be done through climate change lenses with respect to land degradation and biodiversity. For example, it is likely that climate change will alter the spatial requirements for some of the species that would migrate, and these modifications need to be taken into consideration when developing methodologies for deciding on land allocations to different users.

**125.** An important part of the project's work under Output 2.2.1 is to facilitate community supported ecological corridors in Gegharkunik region, by building on the WWF Armenia's Project "*Promotion of Eco-Corridors in the Southern Caucasus Phase I*" best practices in securing community-supported ecological corridors, based on the "community caretaker" approach and the WWF developed "Menu of Conservation Measures Manual" (2018); the WWF Armenia had brokered signed agreements with local communities in support of ecological corridors to facilitate wildlife migration. The ECF Programme is funded by the German Government (German Federal Ministry for Economic Cooperation and Development BMZ) through the KfW Development Bank and by WWF Germany and has set up an "EcoRegional Corridor Fund- ECF" -an instrument for promoting sustainable land use practices in ecological corridors through contractual nature conservation, essentially a form of payment for ecosystem services. The financial resources provided by the ECF are supporting sustainable land use in selected eco-corridors in the Caucasus habitats, and the financial resources provided are helping the local rural population living in the eco-corridors' areas manage their land in an ecologically healthy way.

#### **b) Community supported ecological connectivity**

**126.** The GEF project will complement WWF Armenia efforts and replicate this approach in Gegharkunik region (whereas the WWF Armenia ECF Phase I and II will cover Vayots Dzor region). The GEF project will facilitate engagement with local communities, following the example of WWF Armenia ECF model of best practices described above. In case of communities that are located within the Sevan National Park the agreements will be signed between the "Sevan National Park" State Non-commercial Organisation (SNCO), Ministry of Environment

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<sup>38</sup> <http://www.keybiodiversityareas.org/>

and the respective community Local Self Government (LSG). The community-based conservation agreement could follow the template used for similar conservation agreements in the previous projects of the WWF Armenia. In this case, the Agreement will envisage the specific type of involvement of local communities in the protection and monitoring of the key threatened species and their habitats. For example, the community will designate some representatives (volunteers) for the wildlife monitoring task (usually 1 person/caretaker per 1000 ha); if a community will allocate 3000 ha under sustainable nature resources management schemes (including habitat/pasture management), this means that 3 people from the village will be engaged as community rangers (called “wildlife caretakers” as there is no legislative basis for a community ranger). These designated community representatives will be trained on patrolling and monitoring and will be provided with the necessary equipment. In addition, the participating community will be supported through grants that will assist with additional income generation e.g., sustainable pasture management and compensatory measures for implementing rotational grazing; or support to drip irrigation; support to maintenance of eco-tourism trails; organic agriculture; support to solar powered green-houses and/or fruit dryer; procurement of local biological materials (native seeds, saplings) etc.

**127.** It is expected the project will facilitate 5 community agreements to support wildlife migration friendly corridors, and the exact content of the agreement and management arrangements will be decided at the implementation stage. It is envisaged that the villages around KBAs/IBAs reserves and sanctuaries, under most pressures (e.g., overgrazing, uncontrolled tourism, poaching) will be considered. The project will coordinate closely with WWF Armenia staff and will also explore the use of a mobile application called “**Earthbeat**” (developed by an Armenian Company within WWF Armenia Project ECF phase 1). The Park rangers and Wildlife community caretakers will be trained in using the *Earthbeat App*, which has been already tested and proven to be a really a good tool not only for monitoring of wildlife, but also for pasture management, human-wildlife conflict. For example, the *Earthbeat App* could be used in Vayots Dzor villages, where there were 256 cases of brown bear attacks on cattle and poultry and vegetable crops, vine, and beehives; based on monitoring of these cases, the project could support local communities and provide support for electric fencing of beehives and for orchard protection.

**128. Component 3 Promoting sustainable and biodiversity friendly economic development and incentives for local communities in Lake Sevan landscape.** (GEF financing \$1,420,593 co-financing: \$7,000,000). Under Component 3, the project will promote nature positive solutions in the vicinity of PAs, IBA/KBAs and in areas located within Lesser Caucasus Eco-Corridor, by offering financial incentives for the implementation of biodiversity sensitive SLM measures to achieve LDN. These activities will be implemented in prioritized demonstration areas, in six communities of Sevan Basin landscape. The project will design and support the implementation of LDN compatible SLM measures (e.g., sustainable pasture management, forest restoration and sustainable forest management measures, integrated water-land management planning and LDN guided farming techniques, agroforestry) guided by the Integrated Spatial and Land Use Plans (ISLUPs) and the LDN assessments carried out under the Component 1.

**129. Outcome 3.1 Biodiversity friendly and LDN compatible SLM practices promoted in Lake Sevan production landscape.** Under this outcome, the project will demonstrate SLM measures on 10,000 ha of irrigated agricultural land; 150,000 ha pastureland; 8,000 ha of forest ecosystems that will be brought under sustainable management regimes, compatible with the LDN approach.

**130.** Land degradation neutrality target is set at national and regional levels; however, LDN is reached in the field, through the implementation of ISLUPs and of the adequate SLM measures in each land use type be it pastureland, arable land, forestland. Therefore, the LDN targets set in Gegharkunik and Vayots Dzor marzes with the project’s support (under Output 1.1.1) will be achieved by the implementation of ISLUPs in the selected communities (developed under Output 1.1.2) which is further guiding the implementation of SLM measures at village levels, to achieve land degradation neutrality (under Outputs 3.1.1; 3.1.2; 3.1.3). Thanks to the fact that the ISLUPs will be developed with the **UNCCD-endorsed LUP4LDN software** (which can also determine the type of SLM needed for achieving LDN) it will be easier to identify the most feasible Sustainable Land Management (SLM) measures that needs to be implemented in the project demonstration areas in each land use type (e.g., pastures, forests, arable land).

**131.** In this sense, the project’s work under this Outcome will aim at implementing a variety of Sustainable Land Management (SLM) measures to achieve land degradation neutrality in the field, such as: pasture rotation,

sustainable forest management and regeneration; sustainable crop farming and climate smart irrigation, agro-forestry. The project will be targeting multiple types of landscapes around protected areas, reserves, KBAs, IBAs, in order to *prevent-reduce-restore* degraded land and achieve LDN. These SLM measures consist in different biodiversity-friendly agriculture practices that do not deplete the soil, water resources and the valuable ecosystems.

**132. Output 3.1.1** *Sustainable pasture management plans at targeted village level, aligned with the LDN assessment and the Integrated Spatial and Land Use Plans (ISLUPs), including biodiversity measures for grasslands conservation; 10 Pasture Users Associations capacitated to apply biodiversity friendly SLM measures to achieve LDN and resilient livelihoods*

**133.** Under this output the project will work with Local Self Government bodies (LSG) and with 10 Pasture Users Cooperatives in the selected communities/villages in order to support them and develop sustainable pasture management plans aligned with the ISLUPs and LDN (developed under Output 1.1.2). The LDN indicators will be part of a set of indicators to be included in the future pastures management plans, that will monitor land “gains” and “losses” at pasture level, aligned with the LDN principle. The project will support the progress towards the national LDN target. The national LDN Report highlights the improvement of pasture condition and sustainable use of grasslands as one of the necessary measures to achieve LDN.

**134.** Out of a total of 216,848.9 ha of pasture and grasslands officially registered in the targeted regions (i.e., 194,609.45 ha of pastures and 22,239.45 ha of grasslands) the PPG experts have selected approximately 150,000 ha of pastures and grasslands most of them situated outside protected areas (*please see Annex 16 Target Project Landscape Fig 4*) in five out of the six targeted communities (Shogakat, Yeghegis, Martuni, Vardenis, Vayk). The selection of these sites was based on LDN indicators mapping results (assessment of land degradation trends) and proximity to KBA/IBA within the Eastern Lesser Caucasus Ecological Corridor and the existence of Pasture Users Cooperatives.

**135.** In Armenia, the pastures and grasslands are owned by communities (53.6%) and the by the State (43.6%-this is delegated to communities for management and user rights) and are registered under the administrative territories of communities being managed by the Local Self-Government (LSG) bodies. The management of these areas is entrusted to the municipal Local Self-Government (LSG) in accordance with the Law on Pastures.

**136.** Out of the targeted 150,000 ha of pastures and grasslands in the administrative areas of the selected communities, around 15,550 ha are currently managed by 10 Pasture Users Cooperatives operating in 10 rural settlements: Shatin, Aghnjadzor, Zarithap, Karmrashen, Vardenik, Tsovinar, Vaghashen, Akhpradzor, Ayrk and Shorzha. The remaining 134,500 ha pastures and grasslands are managed by LSG in the selected communities. There are 97 settlements in the selected communities in Gegharkunik and Vayots Dzor regions (marzes). Out of the 97 settlements, there are 93 villages and 4 towns. The local authorities at settlements/village level will therefore play a crucial role in the development and implementation of the pasture management plans for the remaining 134,000ha that are under their management. The PPG field missions, and discussions have indicated the willingness of both Pasture Cooperatives and the local authorities to participate into the project and co-finance the implementation of the pastures management plans that will be developed by the project. The project will re-assess the selected pasture areas during the inception phase, in view of the risk of proximity with the border with Azerbaijan. If necessary, it is estimated that approximated 30,000 ha of pasture areas selected near Vardenis may be replaced with other similar pasture and grasslands ecosystems in other communities.

**137.** The project will have a multi-pronged approach to secure the sustainable management regimes of 150,000 ha of pastures and grasslands in the selected areas:

- First, the project will use GEF resources for the development of the pasture management plans for the entire area of 150,000 ha of pastures (i) 15,550 ha managed by the selected 10 Pasture Users Associations and (ii) 134,500 ha of pastures managed by the local communities (Local Self Government LSG).
- Secondly, the project will help with the mobilization of the needed funding for the actual implementation of these project-supported sustainable pasture management plans and the implementation of SLM measures to reach LDN and secure biodiversity richness by:
  - (i) setting up a proposed Agri-Environmental Payment Scheme guided by a set of Key Performance Indicators (KPIs). The Agri-Environmental Payment Scheme is likely to be piloted initially for the

15,550 ha of pastures and grasslands managed by the 10 Pasture Users Associations and then upscaled to cover the remaining 134,450 ha (and beyond). The project will support the training, awareness and advocacy for the mobilization of blended financing necessary for the implementation of the Agri-Payment Scheme. Advocacy efforts will continue throughout the project, aiming at scaling up the Agri-Payment scheme, eventually possibly including it within a dedicated State Programme.

- (ii) assisting local authorities in the targeted villages/communities (Self Government LSG) to develop/submit project proposals for the mobilization of funds under different national programmes for the implementation of the Sustainable Pasture Management Plans for the remaining 134,500 ha.
  - (iii) assisting the local/regional authorities (Local Self-Government) to mainstream biodiversity-sensitive sustainable pasture and grasslands management within their local development strategies and budget for it, by re-directing local revenues towards the implementation of the sustainable pasture management plans for the communal pasture/grassland areas under their management.
- Thirdly, the project will organize ample trainings of the farmers, local authorities, private entrepreneurs and government officials and private sector representatives including of financial institutions, to first of all build a critical mass of understanding of the importance of pastoralism and pastures/grasslands as critical assets for food security and local economic development in Armenia. Moreover, under the current regional dynamic of events and climate vulnerability, the training awareness and advocacy will be aiming at inculcating a sense of urgency in directing public and private financing streams towards sustainable management of pastures and grasslands (and nature-based solutions in general), including supporting coalition of willing financing institutions towards funding LDN compatible SLM measures such as sustainable pasture management, in order to stop land degradation and ensure resilience of biodiversity and local livelihoods. The project will therefore contribute and support the government's efforts to progress towards meeting the country's international commitments under the UN Rio Conventions (UNCCD, UNCBD, UNFCCC). These training activities are captured under Output 4.1.1.
  - The regional/ local authorities will be trained in project proposal writing and assisted with the development and submission of project proposals for the relevant State Funded Programmes in order to mobilize funds for pastures and grasslands management. Private entrepreneurs participating in the project, willing to implement rotational grazing and other SLM measures to stop land degradation will be supported with technical assistance to fill in and submit bank applications for available concessional loans under State funded programmes for pasture management measures.
  - Then, the project will support the amendments of regulatory and institutional framework in order to facilitate the setting-up of Local Pasture Committees (part of the Local Self Government) that will be tasked with pasture monitoring and will train these Committees members in conducting pasture monitoring (currently, the local authorities have no departments or staff overseeing pasture management).
  - Lastly the project will work with the local Self Government (LSG) in the villages and communities under the project's focus and will support the elaboration of a new **Pasture Management Concept** at local level that will be mainstreamed in the local development strategies and adequate budgeting of SLM measures within their local budget exercises. The communities under the project's purpose are among the new enlarged communities that have emerged after the local amalgamation process need support to elaborate their local development plans and strategies and build up their institutional and human resource capacities.

**138.** The Agri-Environmental Payment Scheme will be likely tested **initially on the 15,550 ha of pastures and grasslands** managed by the 10 Pasture Users Association. The project will support the local authorities (Self Government authorities at village level) to develop sustainable pasture management plans for the remaining 134,500 ha of pasture areas under their direct management and will set up Pasture Management Committees at local level. Furthermore, the local Self-government (LSG) authorities will be supported by a specialized firm, trained and coached to write project proposals and mobilize funds for the implementation of sustainable pastures and grasslands management on the **134,500 ha** under LSG management. For example, the "Community Agricultural Resource Management and Competitive Program" has as a main goal improving the productivity and sustainability of pastures and livestock systems especially in the high mountainous and border communities. Other state programmes that are part of the 2030 Strategy for the Agriculture Sector, could be suitable for the mobilization of the necessary funding for the implementation of different measures included within the sustainable pasture management plans in the communal areas. Some of these programmes are directly related

to the sustainable pastures and hayfield management although they have an economic focus rather than an environmental-positive one for example: the Cattle Support Programme, the Sheep Breeding Support Programme, the Crop Support Programme; the programme “Support to the development of seed production of cereals, legumes and fodder crops” (Please see Annex 20 Agriculture Sector Baseline analysis). The Ministry of Economy runs a national programme on “Subsidizing the interest rates on loans provided to the agricultural sector<sup>39</sup>”, which is envisaged to be amended in order to include pastures infrastructure improvements as a priority financing direction. The Ministry of Territorial Administration runs a number of Subvention Programmes on improving the infrastructure, roads towards remote pastures among the priorities. The project’s technical experts and EPIU will support a package of legal amendments in order to mobilize funds for distant pastures using the CARMAC Project model (where the government funds were supporting not only roads to distant pastures but also water (wells) and shelter infrastructure of the remote pastures).

**139.** The project will hire a team of experts to assist the 10 Pasture Users Associations with pasture surveys and development of the pasture management plans of the 15,550 ha of pastures under their management. The project will also hire a qualified firm to conduct assessments, inventories and develop sustainable pasture management plans underpinned by criteria (KPI) for the pasture areas under the direct management of the Local Self-Government authorities (estimated as the remaining 134,450 ha). The specialized firm will further support:

- development of a package of legal amendments for the mainstreaming of pastures/grasslands among funding priorities of Subvention programme and other relevant State programmes
- the targeted local communities, with the training on proposal writing and development/submission of proposals for mobilization of funding for the implementation of the sustainable pasture management.

**140.** As per the PPG field mission discussions, the local authorities are open to re-direct the flow of local revenues obtained from leasing the land towards the implementation of the pastures/grasslands management plans, although the current figures are modest. For example, according to the official statistics, the 2022 budget of the six targeted communities obtained from leasing the community and state-owned land is approximately 450,000 USD. These funds, however, will be complemented by mobilization of resources from the state programmes (to be developed with the project’s support).

**141.** The project will pilot the proposed Agri-Environmental Payment Scheme in cooperation with 10 Pasture Users Cooperatives (set up with the support of the WB within CARMAC Project) in the selected villages. The number of participating members in the 10 Pasture Users Cooperatives is according to current official data 843.

**142.** *Table 1: Cooperatives by regions and communities*

N	Marz	Community	Settlement	Cooperative	Number of members	Managed pastures ha
1.	Gegharkunik	Martuni	Vardenik	Vardenik PUU CC	95	2000
			Vaghashen	Vaghashen PUU CC	186	1800
			Tsovinar	Tsovinar PUU CC	180	2500
		Vardenis	Akhpradzor	Akhpradzor PUU CC	47	1900
			Ayrk	Ayrk PUU CC	30	1100
		Shoghakat	Shorzha	Shorzha PUU CC	90	1700
2.	Vayots Dzor	Vayk	Zaritap	Zaritap PUU CC	64	2000
			Karmrashen	Karmrashen PUU CC	28	1300
		Yeghegis	Shatin	Shatin PUU CC	86	450
			Aghnjadzor	Aghnjadzor PUU CC	37	800
		<b>Total</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>843</b>

**143.** During the PPG phase the expert team has assessed the cost effectiveness of the proposed scheme, considering a payback simulation model using the available data from 4 communities (Annex 20). The basis for calculating the cost-benefit of the proposed Agri-Environmental Payment Scheme consisted in the indicators of additional products obtained due to improvement of the pastures and grasslands status i.e., pasture green fodder and hay. The calculated payback of investments made on improving the pasture/grassland is

<sup>39</sup> <https://mineconomy.am/en/page/1340>

proportionate with the size of the initial investment in the improvement of the pastures/grasslands condition. The cost-benefit analysis at PPG stage highlights that the Agri-Environmental Payment Scheme becomes more profitable in the case of large farms and pasture users' cooperatives, especially if they are owning the full value chain of milk and dairy products such as cheese. This can significantly reduce the payback time. Initial estimations show that payback is about 4-5 years in case of cheese production, and 6-7 years in case of milk production. For the communal pastures and grasslands areas, the leasing of the improved pastures/grasslands can become profitable from the 10<sup>th</sup> year onwards.

**144.** It is not necessary however to carry out complex SLM measures for pastures improvements, and as such the costs may vary and investments can become profitable in a shorter period of time. The PPG experts are estimating that in order to obtain the land degradation neutrality in the selected areas, approximately 20% of the pasture area could be managed only with superficial improvements in order to *prevent* degradation; 60% of the area could be managed in order to *reduce* land degradation; and 20% could be managed for *restoration* of degraded areas of pastures. The degree of land degradation of the selected 150,000 ha of pastures and grasslands differs, and as such some of the SLM measures will be less costly in case of prevention e.g., less than 100,000 AMD/ha or 245 USD/ha), while the maximum investment is deemed to be 175,000 AMD/ha or 430 USD/ha. In all cases, the payback and effectiveness of investments of the sustainably managed pastures and grasslands depend on the amount of investment, the quality of work performed, and the efficiency of subsequent management.

**145.** The proposed Agri-Environmental Payment Scheme will be likely structured as follows (*due to the novelty of this approach, the below proposed structure discussed with governmental counterparts at PPG stage, may be further refined by the Implementing Partner (IP) after the project inception*):

- **Initiators:** Community Local Self Government; Pasture Users Cooperatives and Livestock Farmer Enterprises- these entities will implement the SLM measures on pasture/grasslands areas according to the prevent-reduce-restore LDN philosophy. The project will use the GEF resources to work with the farmers and support pasture inventories, land degradation assessments, grassland biodiversity assessments, and development of the sustainable pastures/grasslands management plans and improving infrastructure.
- **Investors:**
  - Community Local Self Government, through Community Administration, will direct local revenues collected from pasture leasing fees and cattle grazing fees towards the implementation of the SLM measures as per the project-supported sustainable pasture/grasslands management plans.
  - Ministry of Territorial Administration will contribute with mobilization of funds from the Subvention programmes
  - Ministry of Economy will contribute by directing funds from the Agriculture Subsidy Programme for pasture improvements, subsidizing the interest on loans and thus creating an attractive investment environment
  - Banks and micro-credit organizations will provide the loans. The June 2022 workshop and bilateral engagement with a number of financial institutions have open up the space for exploring the green lending. There is openness for concessional lending for pastures-grasslands and for funding the proposed Agri-Payment Scheme.
  - Private investors and involving Armenian diaspora e.g., successful entrepreneurs located in Armenia or diaspora, willing to invest in their local hometowns or regions. There are many Armenian communities who are involved in funding different objectives in Armenia and this direction will be further explored during the project implementation.
- **Assessors:**
  - The project will initially provide for individual experts to assess the outcome of pasture/grassland improvement.
  - The project will support the Ministry of Environment to set up a Service provider company for assessing the results of the KPI-based Agri payment scheme, as the future institutional model set up by the Ministry of Environment with the project's support.
  - Investors: will also be encouraged/supported to conduct own assessments, using satellite imagery and other digital tools and ground truthing.

- Outcome Payer:

- The Ministry of Environment will offer Outcome incentive payments for Indicators 1 and Indicator 2 (please see below Table 2- proposed KPIs) for LDN and BD benefits. These are proposed to be paid by the Ministry of Environment as incentive payments considering the difference between the baseline and achieved progress status. Alternatively, the payment can be a partial reimbursement as a percentage of the initially required capital investment for pasture improvements (the payment options will be further refined after the project inception).
- The payment will be made against a clause in the contractual agreement namely that the paid amount to be re-invested in the improvement of selected pasture areas until the management measures will be implemented on the entire area/surface under the contract.

**146.** The Proposed Agri-Environmental Payment Scheme was discussed with representatives of government and financial institutions during the PPG workshop of June 2022, aimed at opening up the space for discussing LDN/SLM financing in general, and pastures in particular. The discussions pointed towards the openness of the financial sector for lending for sustainable pastures management, highlighting a few prerequisites that the banks are considering:

- Provision of additional state resources earmarked for pasture management;
- Education and awareness activities for the potential beneficiaries (awareness on the financing products);
- Involvement and active participation of technical consultants to support the process;
- Inclusion of accountability mechanisms;
- Availability of state guarantee, co-financing, subsidy, insurance and other guarantees;
- Risk assessment and implementation of risk insurance mechanisms;
- Improvement of legislation on management and leasing of natural fodder farms (terms of lease, amount of lease fee, etc.);
- Development and implementation of pasture management plans;
- Formation of professional structural unit and specialist positions in communities (for pastures management);
- Development and implementation of key performance indicators.

**147.** The project will therefore work with the Ministry of Environment and the Ministry of Economy and with the financial institutions willing to participate in the project and support the funding of the proposed Agri-Environmental Payment Scheme such as **ACBA Bank; Global Credit; Agro-leasing LLC; Arm-business Bank; Farm Credit Armenia, Unibak**. Some of the prerequisites of pasture financing highlighted during the PPG round table with financial institutions, for example: the required technical assistance, awareness, support to local institutional advisory services and more importantly the development of the pastures management plans and KPIs will be ensured by the project; while other issues, such as earmarked state funding and potential required state guarantees, and risk insurance products etc should be addressed by the government partners during the project implementation stage. The project's efforts in identifying funding sources for nature-positive solutions will be coordinated with other global UNDP initiatives (such as the GEF funded Global Project Biodiversity Financing Programme –under preparation to which Armenia will participate starting 2023) to develop Biodiversity Financing Plan and identification of domestic resources for nature-positive solutions and supporting the earmarking of funds for sustainable nature positive agriculture. Currently, the Ministry of Economy is aiming at investing an additional 2.5 billion AMD for extending the Agriculture Subsidy programme to cover pastures/grasslands improvement. The PPG discussions with the ministry representatives have confirmed that part of the annual allocations will be directed towards sustainable pasture management in support of the future Agri Payment Scheme.

**148.** The GEF incremental support will be used for the development of the gender and biodiversity-sensitive and climate-sensitive sustainable pasture management plans for 150,000 ha pastures and grasslands, that will include Key Performance Indicators and SLM measures that will not deplete land/water resources and will help biodiversity thrive. These indicators will be validated/fine-tuned during the first year of implementation and included in the pastures management plans for all the pastures under the project's scope.



149. Table 2: Proposed KPI under the pastures management plans

Indicator		Measurement Unit	Comment
<b>1. Land degradation neutrality (LDN)</b>			
1.1.	Vegetation cover	%	Vegetation per unit area (1 ha) of pastures dominated by edible forage plants (forage species)
1.2.	Land productivity	kg/ ha	Net primary productivity (NPP); Vegetation productivity in pastures The increase in productivity should be corelated with an increase in palatable species and perennial grasses, not the increasing presence of invasive shrubs or woody species. This should be clearly ascertained by Assessors in the field, in order to establish sustainable management approaches to maintain these resources and the ecosystem services they provide.
1.3	Soil Organic Carbon	Soil quality index (SQI)	Humus content as compared to baseline. (Assessment of the Degraded pasture areas)
<b>2. Biodiversity index per unit area (hectare)</b>			
2.1.	Number of individuals	individuals/ ha	Grey partridge ( <i>Perdix perdix</i> )
2.2.	Juniper of sparse forests - the status*	% or pcs	% coverage of juniper species or number of juniper bushes/trees/young samples per ha
2.3.	Natural high-value fodder species in grassland vegetation	≥ 65% or kg/ha	Productivity of pastures as whole and productivity of high value pasture species ( <i>Fabaceae</i> and <i>Poaceae</i> species)
2.4	Number of recorded violations of environmental and pasture management regulations	#	
<b>3. Stability indicators</b>			
3.1.	Number of cattle and sheep (per ha) using pastures	# / ha	
3.2.	Sufficient feed provision of ICUs and HRCs in the communities during the winter manger period	kg/head	Increasing the storage volumes of hay from the field sector (arable land cultivation) and natural grasslands
<b>4. Socio-economic indicators</b>			
4.1.	Increasing the annual income of livestock farmers at the level of target settlements	≥ 15 %	From the production of milk, meat, hay

5. Pasture infrastructure			
5.1.	Livestock watering points	pcs	According to the current normative requirements
5.2.	Shepherd house and stabling in remote pastures	availability Yes / No	According to the current normative requirements
5.3.	Improved necessary pasture access roads	km or sq.m	According to the distance of remote pastures
6. Institutional			
6.1.	Availability of Pasture Management Plans at community level	pcs	
6.2.	Position of a specialist in the management of pastures and grasslands (agronomist-farmer) in local government bodies	pcs	The presence of a post in forming the nature protection and agriculture departments is a guarantee for organization and management of the sustainable management.
6.3.	Pastures under sustainable management	ha	
7. Vulnerability to climate change			
7.1.	Biomass productivity per unit area	t/h	Possible changes in yield indicators
7.2.	Soil moisture level	%	Conditioned by rainfall, vegetation and density of vegetation

**150.** The project will hire a team of technical experts to support the development of pasture management plans and trainings in the targeted communities, following below recommended steps (*please see detailed approach under the Annex 20 Agriculture feasibility analysis for Outcome 3*):

- **Mobilization of target communities** in Gegharkunik and Vayots Dzor regions: This step is all about setting up working groups at the community level (consisting of local self-government bodies, community specialists, farmers engaged in land cultivation and animal husbandry, including up to 30% involvement of women). Conducting trainings and practical seminars for working groups and stakeholders to develop skills in land use planning, sustainable management of pastures and grasslands, as well as value chain. Capacity building activities should begin after community mobilization and the initial steps in organizing community management of pastoral resources. The project will build on GIZ project results “Sustainable Management of Biodiversity, South Caucasus” and the materials, manuals and guidelines on pasture management developed.
- **Inventory of pastures and grasslands** in the selected project sites, assessment of the pasture use patterns and seasonal distribution of livestock; drawing GIS supported maps based on surveys results; (i) Validation and delineation of proposed targeted pasture areas, in coordination with the development of ISLUPs (under Output 1.1.1) using remote sensing data and surveys; GIS-supported mapping of pastureland; validation of the selected demonstration areas (ii) Botanical inventories of flora composition of grasslands and pastures (in coordination with the inventory of the Palearctic grasslands conducted under Output 2.2.1) and assessment of the status of the vegetation; (iii) Identification of basic infrastructure barriers such as the lack of watering infrastructure, lack of shading infrastructure for livestock; (iv) Assessments of soil condition and presence of native forest shelterbelts; (v) Gender sensitive assessment of socio-economic factors (including the differentiated ways men and women use and have access to natural resources, highlighting challenges faced by women, youth and other vulnerable groups) and verification of the available suitable pasture management technologies.
- **Mapping sensitive areas** and clarification of regulations on pasture allocation and norms on carrying capacities for each pasture type, livestock, and forage guidelines.

- Establishment of the appropriate pasture grazing carrying capacity, methodology will be developed, tested, and promoted with transparent and well documented analysis.
- Validating and fine tuning the proposed pasture rotation measures alignment with the integrated LDN compatible land use planning under Output 1.1.1 The selected pasture sites under the project scope will promote pasture management and grazing measures that will contribute towards preventing and reducing degradation in pasture areas;
- Planning for annual harvesting of fodder crops as agreed with the pasture users; planning for winter crops is to ensure access to winter fodder and prevent the livestock initiating grazing too early the following spring;
- Design and plan for agroforestry measures such as planting forest shelterbelts and areas of interconnection within biological corridors, maintaining, or creating ecological connectivity;
- Planning for distribution of livestock manure in select areas of the pastures to increase soil fertility.
- Creation and maintenance of pastures plants, and potential seed nurseries with native species.
- Design a Pasture monitoring scheme (to be used by the pasture managers and users, with the support of local Pasture Users Cooperatives and Local Self Government pasture departments) The Pasture Management Plans will encompass Pasture Monitoring Scheme with agreed indicators aligned with the Key Performance Indicators (KPI) of the Agri-payment Scheme. The pasture monitoring fiches will also include monitoring of appropriate measures for environmental and social safeguards e.g. (i) measures for maintenance of established pasture carrying capacity to counteract potential increase of livestock on rehabilitated pastures; (ii) site specific risk assessments in case of seeding non-indigenous fodder plant species and strict monitoring of results; (iii) site specific assessments prior to potential converting steppe ecosystem to fodder plots and strict monitoring of the vegetation dynamic etc.
- Facilitation of alignment/integration of the pasture management plans with the relevant business development strategy of the Pasture Users Cooperatives and the Local development objectives of the Local authorities.
- Allocating budgetary resources and support to pasture infrastructure (wells; shelter for cattle and shepherds) in order to secure access to alternative/remote pastures and implement pasture rotation.
- Training of specialists from the local departments responsible with pasture monitoring within LSG authorities in order to perform pasture monitoring tasks.
- Support to development of regulatory amendments for the creation of Pasture Management Committees at local level; and amendments of pasture leasing contracts in order to strengthen monitoring responsibilities, and mainstream biodiversity and climate vulnerability indicators.
- Implementation: includes targeted support to Local Self Government for project proposals writing and submission for mobilisation of funds and working with 10 Pasture Associations, Ministry of Economy and Ministry of Environment and several financial institutions for setting up and operationalisation of the Agri-Payment Scheme.

**151.** The project will apply targeted feasibility/risk assessments (including climate related risks and vulnerabilities) in the project areas, in order to identify, prevent and mitigate potential negative impacts on critical habitats and potential economic displacement risk resulting from the design pastures management measures (such as tactical grazing methods). If confirmed, via site-specific screening during implementation, then the risk of economic displacement will be managed by integrating all elements of a Livelihood Action Plan into the respective pasture management plans. During the implementation, site specific screening will be applied in order to implement the required management measures as described in the plans (as per SESP and ESMF).

**152.** Overall, the project will promote the *ecosystem approach* and *land degradation neutrality principles* within the project sites and within the same land use types (e.g., pastures). Through participatory assessment and evaluation of the different land use types, the project will facilitate agreement among pasture users and consensus on the results of the analysis of the ecological state of each area and more importantly, upon the measures that need to be implemented that are contributing towards “land degradation neutrality”, to conserve pastures that are healthy and improve those pastures that are showing different degrees of degradation. Involving communities in this *biodiversity-sensitive “neutrality”* discussion allows them to visualize and understand how ecosystem services flow through the different land systems, and it is expected that LDN and the need for a landscape-scale ecosystem-based approach will be better understood.

**153. Output 3.1.2** *Climate sensitive and LDN compatible Integrated Water-Land Management Plans in selected municipalities leading to soil improvement through innovative irrigation technologies and climate resilient crop farming aligned with LDN principles; strengthened capacity of WUAs to demonstrate sustainable crop farming and agroforestry measures.*

**154.** Under this output the project will work with the Water Users Associations (WUAs) and local communities in the targeted communities and will support investments in sustainable irrigation and farming approaches that do not deplete soil and water resources, in line with the priorities of the Armenian government to mitigate land degradation and the climate related risks to agriculture development. The National LDN Report highlights the importance of regenerative agriculture and the improvement of land and water use in crop farming for the achievement of national LDN target. The efficient land use and protection of water resources are both very important for Armenia, due to the diminishing water resources and predicted water scarcity and land degradation, therefore the necessity for an integrated land-water approach.

**155.** By 2040 the temperature will rise by 1-1.5% and precipitation will decrease by 5-10% in parts of Gegharkuniq and Vayots Dzor regions leading to a 10% decrease in river flow in the Arpa River basin (in Vayots Dzor region). In Vayots Dzor region, the project will work with WUA servicing Yeghegi and Yeghegnazor communities, in the village of Taratumb (in the proximity of Gndasar KBA/IBA); In Vayk community the project will work in Kaput, Gomq and Zaritap villages in the proximity of Arpa KBA/IBA. In Gegharkunik region, most of the selected areas are on Masrik Plain near Sevan National Park. The project will work with Gegharkunik WUA and local farmers in Martuni and Vardenis communities and selected villages. In the serviced areas under the Water User Associations (WUA) of Gegharkuniq marz/region, in Martuni and Vardenis communities, the main crops are wheat, barley and potatoes, as well as fodder crops, apple and pear orchards. In Yeghegi community of Vayots Dzor marz/region, the local communities grow mainly wheat, barley, and fodder crops, apples, peaches, apricots, walnuts and grapes. In the selected communities of Gegharkuniq and Vayots Dzor marzes, 80-90% of the hydrotechnical structures that are serviced by the WUAs are 55-65 years old registering significant water losses (60-70%). Obsolete irrigation canals deteriorated concrete canals and worn-out pipes (which cause large water leakages), as well as the absence of water meters on water pipes and the lack of modern equipment and methods for irrigation are the main reasons for these significant water losses.

**156.** The selected arable land areas covers 10,000 ha of farmed arable land, out of which - as it has been assessed during the field missions, only approximately 50% is actually irrigated, the irrigation infrastructure being old and in poor condition. The GEF resources will be used to support the development of ***climate resilient and LDN compliant Integrated Water/Land Management Plans*** covering 10,000 ha of arable irrigated and non-irrigated land serviced by the WUAs including: (i) Measures for sustainable LDN compliant land farming and hydrotechnical repairs of the existing irrigation infrastructure on approximately 5,652 ha and (ii) LDN compliant farming techniques and support to drip irrigation on farm for the remaining area up to 10,000 ha, that will ***prevent-reduce-restore degraded land***, aligned with the ISLUPs and LDN approach.

**157.** The project will also train WUAs in the selected areas to develop proposals for the mobilization of the necessary funds for the implementation of the Integrated Water/Land Management Plans, mobilizing funds from the State programmes (i.e., the Subvention Programme). The project will also help the WUAs develop and submit bank applications for soft loans in order to obtain the necessary funding for these works. According to the Republic of Armenia Government decree N 212-L of March 7, 2019 *“On approving the co-financing program for the implementation of modern irrigation systems”*, the state supports businesses and water users to receive soft loans and subsidies for the introduction of new irrigation technologies. The private entrepreneurs interviewed in the selected areas, farmers and WUAs are willing to co-financing the necessary measures up to 10%.

**158.** The project will offer co-financing from GEF funds to support a portion of the hydrotechnical repair works and investment into climate smart irrigation techniques (as per the feasibility analysis summarized in the table below). **It should be noted however**, that the estimated GEF funds (i.e., 349,950 USD) for support to hydrotechnical repairs will be made available only after the funding from the State Subvention Programme, WUAs and private entrepreneurs will be mobilized. Only after the mobilization of the main funding sources and the design of the necessary Environmental Impact Assessment (EIA) study and technical works (as per the applicable national legislation) will the GEF project funds be made available for the co-financing of the pipe repairs and for conducting the Environmental and Social Impact Assessment (ESIA) as per UNDP SES

requirements. In addition, the project will use the GEF funds to cover the cost of technical experts to support the development of the Integrated Water-Land Management Plans, trainings for WUAs and support to WUAs for project proposal development and submission in order to mobilize funding needed for the implementation of the Integrated Water-Land management plans and hydrotechnical repairs.

**159.** As a result of the implementation of the Integrated Water/Land Management Plans covering 10,000 ha an estimated 58,800 people will benefit from the improved irrigation infrastructure on 5,652 ha, sustainable farming techniques and modern irrigation systems. The summary of measures as identified at PPG stage are presented below and further described under Annex 20-Hydrology Feasibility interventions for irrigated areas):

**160. Table: Description of the recommended investments under the Water Management Plans in the project targeted communities**

Description of the hydrological work proposed under the GEF project	Total cost	Village/Marz	GEF	Expected Co-financing (USD)	Funds to be mobilized by writing proposals (under Horticulture Dev. programme and other gov programmes)	Number of beneficiaries (number of people benefiting from the works)
Reconstruction of a pumping station building with an area of 40 m <sup>2</sup> . Conducting water supply with a polymer pipe 200 mm long 1300 m. Pool repair. Pool volume about 7,200 m <sup>3</sup> Concrete and polymer coating on degraded areas of the pool. As a result of the reconstruction, 52 hectares of land will be irrigated	90,000	Vayots Dzor marz, Yeghegis community (Taratumb village)	12,000	7,500- community 7,500- WUA Yeghegis	63,000 – Subvention Programme	400
Construction of a 10-km conduit from the Kapuyt River with polymer pipes with a diameter of 350 mm. Every 2.5 km, install water valves on the water conduit. As a result of the reconstruction, 300 hectares of land will be irrigated.	640,000	Vayots Dzor marz, Vayk community (Gomk and Zaritap villages)	142,000	50,000- community	448,000 - Subvention	1,400
Laying of a water conduit with a polymer pipe 500-550 mm in the 5.6 km section of the Martuni dividing canal. Every 2.5 km, install water valves on the water conduit. As a result of the reconstruction, 600 hectares of land will be irrigated	408,500	Gegharkunik marz, Martuni community (Martuni, Vaghashen, Asthadzor villages)	52,550	30,000- community 40,000- WUA Gegharkunik	285,950 - Subvention	20,500
Rehabilitation of 10.5 km of the Martuni Sary Aru Canal. Conducting water supply with a polymer pipe 300 mm. As a result of the reconstruction, 2000 hectares of land will be irrigated	638,000	Gegharkunik marz, Martuni community (Vagashen, Asthadzor Zolakar and Vardenik villages)	51,400	70,000- community 70,000- WUA Gegharkunik	413,000 - Subvention	16,200
Installation of a geomembrane on the Masrik canal and laying of protective barbed wire for animals. Reconstruction of the Gilli-Tsovak pumping station. Installation of a polymer pipe 300 mm long 2500 m and a centrifugal pump unit D - 360/50 at the pump station.	590,000	Gegharkunik marz, Vardenis community (Vardenis, Metz Masrik, Pokr Masrik, Norakert and	57,000	40,000- community 80,000- WUA Gegharkunik	413,000 - Subvention	18,000

As a result of the reconstruction, 2200 hectares of land will be irrigated.		Geghamasar villages)				
Tsovak # 1 and Tsovak # 2 canals condition assessment ev recovery. As a result of the reconstruction, 500 hectares of land will be irrigated.	150,000	Gegharkunik marz. Vardenis community Tsovak village)	35,000	5,000-community 5,000-WUA Gegharkuniq	105,000 - Subvention	2,300
<b>Total:</b>	<b>2,516,500</b>	-	<b>349,950</b>	<b>405,000</b>	<b>1,761,550</b>	<b>58,800</b>

**161.** The project supported Sustainable Water-Land Management Plans measures will include the application of best practices in crop selection, crop rotation techniques, and innovative technologies and methods for the efficient use of water to the field level, and inter-cropping for the soil’s nutrient enrichment. The project will work with local farmers and agricultural producers to use climate-smart irrigation and farming technologies such as drip irrigation. The response hierarchy of *Avoid-Reduce-Restore* degradation will guide the planning of LDN/SLM interventions and the selection of demonstration areas and SLM interventions will be linked with ISLUPs and LDN baseline assessments. The project will further support suitable agro-forestry fruit tree systems resistant to water scarcity, on marginal and degraded land, slopes and ravines. The agroforestry demonstration areas will be selected/validated during the first year of the project based on LDN assessments and LDN hot spot identification. The funding of agro-forestry measures will be supported by grants (in coordination with Output 3.1.4). Priority will be given to those farmers who own land in unfavorable locations, far from irrigation networks and where degradation is evidently higher.

**162.** The project will work with safeguards experts/company and will conduct environmental and social screening and assessments aligned with the SES requirements for all the envisaged works under this output, following applicable domestic policies and legislation and the requirements of UNDP SES. For the repairs of the hydrotechnical system that is paid for by GEF funds. The project will ensure that the activities are *adhering to* the UNDP/SES requirements. On the other hand, for the works paid from co-financing (funds that are not going through UNDP accounts) the project will ensure *consistency* with UNDP/SES requirements, but the main responsibility is ensured by the local authorities and WUA beneficiaries. An Environmental and Social Impact Assessment (ESIA) is envisaged for these works, as per UNDP/SES requirements. The project’s technical experts will work together with the specialized safeguards experts/company and will ensure that the risk mitigation measures are aligned with UNDP Enterprise Risk Management Policy and national legislation and that will be fully implemented and monitored. Some of the recommended risk mitigation measures at site will be included in the third party contracts for example: (i) ensuring proper equipment installation by manufacturers at the site (ii) ensuring that people are using safe work practices especially when electrical contacts are involved; (iii) safe bypass operation roads between settlements or farms along the canals; (iv) the operational road will be organized with minimum disturbance as close as possible to the terrain to preserve the natural landscape. The project specialized experts will work with the contractors to ensure that national working standards (Labor Code) are respected, and appropriate wages will be paid per assigned task and no child labor will be employed.

**163. Output 3.1.3 Sustainable Forest Management Plans addressing forest degradation and ecological connectivity through sustainable forestry measures and assisted regeneration**

**164.** Armenia’s forests cover 334,100 ha (11.5% of a historic coverage of 30%), which includes 283,600 ha of natural forests and 50,500 ha of plantation forests. Outside of the official protected areas, the forest is managed by the state, through “Hayantar” State Non-Commercial Organization (SNCO– state-owned enterprises) of the Ministry of Agriculture. The targeted administrative regions of Gegharkunik and Vayots Dzor, included in the Lake Sevan Basin, are encompassing approximately 27,050 ha of forest which represents 8.09% of the total forest area.

**165.** The project has selected 8,000 ha of forest ecosystems in the targeted communities and will work together with Sevan National Park staff (managing the forest areas included within the PA) and with **Hayantar State Agency** (managing the forest ecosystems located outside of the Sevan National Park) in order to update their existing forest plans in the targeted regions, based on participatory approaches with the participation of PA staff, foresters, owners of adjacent land, local and regional self-government structures. The project-

supported updated forest plans will identify climate resilient sustainable forest management measures and will help establish institutional roles, responsibilities, and ensure consensus on the monitoring mechanisms. Based on the land degradation, climate vulnerability assessments conducted under the project (under Outcome 1) the forest management plans will include measures that are consistent with LDN-related land degradation assessments and land use planning and will include climate and wildfire risk reduction measures based on priority of geographical mapping of degraded areas.

**166.** The total forest areas officially registered in the targeted communities cover approximately 3,649 ha in Gegharkunik and 9389.1 ha in Vayots Dzor, out of which the project selected 8,000 ha of forest ecosystems to be brought under sustainable management.

**167.** Table: Project sites- forest areas

ID	Community	Forest Ecosystem for Restoration, ha	Forest Ecosystem under revised management plans,ha
1	Shoghakat	293.0	1,114.8
2	Martuni	0	0
3	Vardenis	295.2	1,091.0
4	Yeghegis	0	2,054.6
5	Jermuk	0	1,546.5
6	Vayk	1,612.3	0
	TOTAL	2,200.5	5,806.9

**168.** Some of these forest areas are located partially within Sevan National Park selected near Shogakat (145.8 ha) and Vardenis (442.4 ha), where there is a sparse juniper forest and oak forest (as per Annex 16 Fig. 9) and some areas were selected outside the PA, in Vayk community (1,612.3 ha) in Vayots Dzor region, where there are mixed forest ecosystems. These forest areas are under pressure coming either from illegal grazing of livestock (such as in and around the juniper sparse forests sanctuaries) or other forms of livestock grazing nearby pastures and trampling and eating young trees. Other areas have been destroyed by the slash and burn agriculture practices causing degradation of forests and adjacent pastures and forest fires (for example in Vayk community). The project will work with PA staff, with Hayantar State Agency Forest rangers and foresters to better enforce the legislation on banning grazing around sanctuaries i.e., the juniper forest/oak forests and will support the establishment of tree nurseries with native species and will also work with local communities to incentivize the farmers away from destructive behaviors such as slash and burn agriculture. The project will offer compensatory support to communities affected by the improved enforcement of the environmental legislation through: technical assistance for agro-forestry measures in community areas bordering forest ecosystems; support for biological materials (seeds) for agroforestry or village level nurseries, and other measures to support restoration of degraded or marginal land; mini-grants to support alternative income generation; support for electric fencing of apiaries especially in areas with human-wildlife conflict (e.g. in Vayots Dzor). The project will also provide technical assistance and support to Hayantar Agency and biological material (e.g., native tree seedlings) to save existing forest range and replenishing missing rows of trees. Other measures will consist in removing weedy vegetation and/or disturbances such as overgrazing through rotational fencing or other management measures to prevent livestock grazing in the forest regeneration areas. The project will build on the WWF experience on promoting community endorsed eco-corridors through signed agreements with local communities living around juniper forest (Juniper Open Woodland) as these habitats are preferred by the wild ungulates, and the project will work with local communities to engage them in alternative income generation activities in order to preserve critical habitats (in coordination with Output 2.2.1).

**169.** The project will support Hayantar State Agency design measures to support assisted natural regeneration on approximately **2,200 hectares** using a blend of measures (active planting and passive restoration) together with the local communities in order to eliminate barriers to the forest's growth. The project will support assessments of forest degradation and drivers in order to identify the best methods for assisted natural regeneration. For example building of firebreaks and clearing dry debris, stopping cattles from munching on saplings (i.e. support to fencing where needed), planning for removal of invasive shrubs and encouraging new vegetation to sprout from underground root system, and planting local native species to patch up missing rows of trees. It is recommended to use oak seedlings as the main tree species, as well as maple and ash seeds as a



secondary tree species (average of 3,000 seed plants per 1 hectare). It is also recommended to use oak seeds as the main tree species, as well as pear, apple and plum seeds as secondary trees (average of 2000 seed plants per 1 hectare). Seedlings will be planted into prepared soil to improve survival rates. In order to ensure high efficiency of the works, there is a need to first carry out the soil preparation works in the fall of the first year of the project and planting in the spring of next year. Fencing may be needed to assist natural recovery.

**170.** In addition, the project will support Hayantar State Agency to update their current forest management plans for approximately **5,800 ha** of forest ecosystem areas in Yeghegis (2,054.6 ha), Jermuk (1,546.5 ha), Vardenis (1,011.8 ha) and Shogakat (1,194 ha) communities (as per Annex 19 Fig. 5). The updated forest plans of the natural forest ecosystems will include climate change resilience, fire management measures, demarcation of restricted / sustainable lands, forest use, ecosystem service areas, wildlife priority corridors (including the areas located in the Ecological Corridor of the Lesser Southeastern Caucasus). Any potential economic displacement of the local community stemming from forest management measures that may restrict access to natural resources, will be accompanied by mitigation measures included in the forest plans (i.e., compensatory measures) according to UNDP SES requirements. The project will provide grant support to beneficiary communities in the 2 targeted regions for alternative income-generating value chain activities, such as agroforestry, beekeeping, non-timber forest processing (berries, mushrooms, medicinal herbs, tea plants), which are expected to improve living conditions and alleviate social problems at the community level (in coordination with Output 3.1.4). Within the framework of the project, the activities of forest management and improvement of degraded areas will include the participation of "Hayantar" SNCO, "Sevan" National Park, and the local government bodies of the target communities. Communities will be the beneficiaries of the results key partners in reforestation operations, forest management and forestry experts will plan, direct oversee the operations. The measures to promote sustainable management of forest ecosystems that will be updated are for example: (i) Restriction and prohibition of illegal logging; (ii) Regulation and control of wild collection; (iii) Implementation of sanitary cuttings and forest prunings; (iv) Prevention of overgrazing with pets in forest areas and irregular haymaking; (v) Prevention of outbreaks and spread of leaf eating pests and diseases; (vi) Formation of mineralized layers of fire-fighting significance in forest areas; (vii) Managing organic debris for forest health; (viii) Establishment of forest plantations; (ix) Implementation of complex measures to support natural regeneration; (x) Forest protection works; (xi) Implementation of forestry measures promoting the growth and development of the main species; (xii) Modern forest monitoring systems; (xiii) Managing canopy, adjusting the light regime, sowing seeds, planting seedlings.

**171.** Taking appropriate measures in forest management can, to some extent, reduce the environmental and socio-economic consequences of possible forest degradation under the influence of climate change, including wildfires which may increase in frequency. The incidents of forest fires have increased in several parts of Vayots Dzor region. There is no systematic fire monitoring in Armenia and the capacities for fire prevention and management within Hayantar Agency and at the local community levels are very limited. The difficult terrain and degraded state of forest road network as well as lack of technical capacities and forest fighting equipment constitute a significant constraint that hamper rapid interventions in case of fire hazards.

**172.** To address these capacity constraints, the project will support Hayantar State Agency and the Sevan National Park with targeted investments in fire-fighting equipment and tools for suppression of initial fires: fire swatters and backpack fire pumps; brush hooks designed to effectively remove surface and ladder fuels, collapsible water tanks and weather meters that will help the assessment of weather conditions and wind speed and full sets of protective firefighting uniforms. The project will organize trainings on fire prevention and fire management in partnership with the Ministry of Emergency Situations and will contribute to improving the early-response capacities of Hayantar forest managers and Sevan National Park (in coordination with Output 2.1.1) i.e. planning and implementation of measures for wildfire preparedness, wildfire suppression, hazardous fuels reduction, landscape restoration and rehabilitation, fire reporting and communication and education activities. The project will facilitate (if needed) inter-institutional agreements between Hayantar and Ministry of Emergency Situation and Sevan National Park and the Ministry of Emergency Situation for rapid interventions.

**173.** At community level in Gegharkunik and Vayots Dzor regions, the project will set up local rapid-response community fire-fighting teams that can be deployed by the Local Self Government (LSG) to assist in controlling the outbreak of small, localised fires and in this sense will work together with Hayantar foresters. The project will support the LSG with the provision of firefighting equipment, each community will receive training and equipment (water backpack pumps, fire-fighting swatters, face masks, goggles, helmets, gloves, mobile water

pumps, weather meters for assessing the weather conditions). Info-boards with fire prevention guidelines will be set up in specific locations (to be determined at the project inception) especially in the villages bordering national reserves and wildlife sanctuaries, and in the areas where it is known that tourists are camping and barbecuing and in other places local communities are burning vegetable waste. The information boards will disseminate awareness and safety warnings regarding the potential fire hazards and community safety measures.

**174. Output 3.1.4** *Investments in community-based biodiversity friendly sustainable use measures and support to small eco-tourism operators including women entrepreneurs, in the PA, KBAs buffer zones and corridors, aiming to provide alternative income to local communities*

**175.** The project's work under Output 3.1.4 is cutting across several outputs and will aim at providing grants to local communities to incentivize local initiatives that demonstrate sustainable use of biodiversity within the Sevan Basin landscape, facilitating community supported eco-corridors and alternative livelihoods in harmony with nature (in coordination with Output 2.2.1). Eco-tourism measures that will be supported by grants should promote valorization of Sevan Ramsar areas and the KBAs/IBAs under the project's focus. The grants in support of eco-tourism could support for example the maintaining of ecotourism trails (cycling trails; hiking trails; horse riding trails; birdwatching or Bezoar Goat watching local infrastructure; information materials and information boards for tourists; support to guided tours and participation to local festivals with breaks in local B&B and restaurants etc.

**176.** In the targeted community's ecotourism is only emerging. In addition, the project grants will offer support to sustainable SLM measures that demonstrate cost-effectiveness and replication potential (Outputs 3.1.1; 3.1.2; 3.1.3). The grants could offer support (up to 20% within the limits of the available project budget) to nature-positive investments e.g. compensatory measures to support rotational grazing; water saving irrigation equipment; regenerative agriculture measures that enhances soil fertility; agroforestry measures; costs of seeds; pasture wells refurbishment or construction; medicinal herbs processing, solar powered greenhouse, bee keeping; local traditional arts and crafts. Technical assistance for bank applications to obtain concessional loans for Sustainable Land Management (SLM) measures will be offered to complement the project grants for those participating farmers who are aiming at a larger investment in sustainable pasture management, organic agriculture, climate-smart irrigation, or eco-tourism.

**177.** During the first year, the project will organize preparatory training seminars in the targeted communities and will inform the potential beneficiaries about the grant mechanisms, proposals format, financing criteria and will offer technical assistance to the preparation of these proposals and the calculation of cost effectiveness. The calls for proposals will be launched during the second year. The proposals will be screened by the Project's Technical Group consisting of the Project manager, Task Leader Component 2, International Technical Advisor, 2-3 relevant project experts e.g. Community Outreach Specialist, Gender expert, National Agrobiodiversity Economist, and/or other technical consultants as needed. The next evaluation filter and quality assurance mechanism will be ensured by a short-term international economist hired by the project to assess these proposals from the socio-economic benefits and sustainability point of view. The final selection criteria will be focused on benefit-cost ratio (BCR) and the likely payback period (yrs.) of the interventions. Those interventions that cannot demonstrate a BCR in excess of 2:1 and a payback period of less than 10 years will not be funded. Proposals will be ranked on the basis of their economic returns as part of the selection process. Then, the winning proposals will be submitted to the Project Board. The proposals will be analysed and approved by the Project Board.

**178.** Grant financing will be based on UNDP Low Value Grants procedures. A Grant Selection Manual with clear criteria will be developed by the Technical Group. The grant will consist of non-cash support to activities that are aligned with the project philosophy (i.e. non-livestock activities, aligned with LDN and biodiversity sensitive practices). The targeted villages participating in the on-granting activities will be carefully selected during the project implementation and coordinated with the selection of the villages participating in the demonstration areas under, Output 3.1.1, Output 3.1.2, Output 3.1.3, and Output 2.2.1 (some options are described under Annex 21 Socio-economic analysis). Grant winners will sign a contract with the Implementing Partner/Responsible Party to carry out agreed activities based on a set of measurable milestones. Recommended criteria for selection of applications (grants):

- ✓ Eligible objectives e.g.: local eco-tourism support e.g. combined hiking trails that may include natural values (valorisation of Sevan Ramsar site and/or other KBAs/IBAs) and cultural sites (e.g. ancient monasteries or fortresses along mountain foothills); local arts/crafts (alternative income); bee-keeping; medicinal plants/fruits/vegetable processing; solar powered green house; support to pasture management/forest management planning; support to agroforestry measures aligned with LDN; efficient irrigation systems; support to LDN compliant crop rotation; support to offset some initial costs of electric fencing of apiaries against bears (wildlife); technical assistance for the implementation of SLM activities; biological material (seeds/seedlings) for agroforestry and sustainable pasture management etc.
- ✓ The feasibility of proposed measures and ecological benefits will be assessed from the technical point of view (alignment with the project's overall objective; and technology), budget and timeliness of implementation by the project's technical team.
- ✓ Cost effectiveness: An ex-ante cost benefit analysis will be part of the proposals design of the local interventions that is intended to be funded. The project will hire an economist to help the farmers conduct such cost benefit analysis. Socio-economic benefits (Benefit -Cost Ratio and payback period) and will have to be clearly highlighted.
- ✓ Location in the project target areas (as described by the identified LDN *hot spots* under Output 1.1.1; proposed areas under Outputs 3.1.1; 3.1.2; 3.1.3 and areas around the mapped ecological corridors under Output 2.2.1;
- ✓ Sustainability criteria: evidence that the interventions are likely to be maintained over time, after the project has finished.
- ✓ Co-Financing: will be presented in the proposal (in the form of labour or other inputs).
- ✓ 30% of women and other vulnerable groups such as war migrants/refugees, veterans, youth- are direct beneficiaries of the proposed measures;
- ✓ Accessibility of demonstration sites for hosting visits/tours for exchanging best practices e) commitment to sustainability and to maintaining sustainable land management measures after the project will end.
- ✓ Willingness of the applicant to participate in the project trainings and farmers-to-farmers sharing of experience

**179.** The project will ensure an approximately equal proportion of SLM measures and eco-tourism financed through the selected investments in order to eliminate the possibility of grants financing only one type of intervention. A UNDP grievance mechanism will be incorporated within the on-granting process with responsibility to monitor for early detection of grievances (*please see Annex 16: Stakeholder Engagement Plan : Conflict and Grievance Mechanism*).

**180. Component 4. Knowledge management** (GEF financing \$326,125; co-financing: \$1,526,775). Under this component the project will integrate lessons learned from similar initiatives and will focus on raising awareness, changing behaviours, and sharing knowledge and good practices pm LDN compliant SLM measures and promoting biodiversity values and the need for a holistic integrative approach in Sevan Basin landscape.

**181. Outcome 4.1** *Best practices and lessons are accessed and applied in other production landscapes and micro-catchments in the country and in the region*

**182.** The project builds upon previous similar experience, and will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects (further detailed under Annex 22 Knowledge Management Plan). The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned.

**183. Output 4.1.1** *Increased knowledge and awareness among local communities and decision makers about LDN and key values of Lake Sevan Basin in connection with the use of water and biodiversity ecosystem services.*

**184.** The project will learn from the baseline projects and demonstrated good practices e.g. GIZ "Sustainable Management of Biodiversity, South Caucasus" Project on pasture and grassland management in Armenia, which has supported the development of several manuals that will be used by the GEF project "Manual for Monitoring of Pastures, Armenia", "Guidelines for Development and Implementation of Sustainable Management Plans for

Pastures and Grasslands" and "Manual on Improvement of Degraded Natural Grazing Lands", which could be further used in the GEF supported training activities benefiting the pasture users, livestock farmers and private entrepreneurs. The project will also build on WWF Armenia's experience in working with local communities and facilitating community-endorsed eco-corridors, successfully tested under the BMZ/WWF Germany funded "Promotion of Eco-Corridors in the Southern Caucasus Phase I". The project will further learn from and synergize with GIZ/UNDP EU4Sevan project for strengthening the capacities of Sevan National Park and for promoting SLM measures within Sevan Basin landscape, in coordination with GIZ implementation components of the EU4Sevan project. The project will also use the FAO supported Armenian Soil Information System (Arm SIS) for the LDN target setting and land degradation assessments under Outcome 1 and will also closely coordinate with the FAO Project "Implementation of Armenia's LDN commitments through sustainable land management and restoration of degraded landscapes" and learn from their experience with the regional/local coordinating mechanisms for LDN implementation in Lori and Syunik regions. The rich experience and lessons integrated from other projects as well as insights from a brief behavioral change analysis conducted together with the UNDP Armenia Innovation Lab and recommended activities to be implemented under this Outcome are further detailed under Annex 22 Knowledge Management Plan

**185.** The project will support targeted trainings at local community level on LDN compatible SLM measures and accessing available funding in coordination with FAO Project "Implementation of Armenia's LDN commitments through sustainable land management and restoration of degraded landscapes". The training will be tailored to local communities' needs for information, be it about technical LDN and SLM aspects (with FAO), sustainable fishing/aquaculture, LDN friendly value chain (in collaboration with FAO), available financing and financial products (in collaboration with financing institutions), climate risk insurance products, rural entrepreneurship, farm business planning, eco-tourism and aspects related to land and water use legislation and regulatory measures on biodiversity utilization in and around KBAs and on Sanctuaries (IUCN IV) territory. The trainings will include outdoor activities (planning and production oriented) and farmer-to-farmer experience sharing. Some of the training sessions for natural resources users may be organized jointly with the financial institutions (i.e. such as ACBA Credit Agricole) in order to raise awareness about existing financial products and application requirements as well as teach/enhance farmers' skills in farm-finance and farm and sustainable aquaculture concepts, marketing and farm produce selling.

**186.** In coordination with WWF Armenia, the project will further organize ample awareness raising and education activities targeted at capacity gaps, with the participation of local and national decision makers and local natural resource users, aiming at increasing awareness and technical knowledge on what Land Degradation Neutrality stands for; acknowledging the problems and changing behaviors by adopting a more responsible attitude towards the use of land, water and biodiversity resources (please see Annex 23 Behavior change analysis). The awareness raising activities on critical species and habitats will use the new knowledge generated by the project-supported inventories and studies and biodiversity mapping. The project will make sure that the awareness and training activities will be gender sensitive and will highlight the differentiated roles of men and women in implementing LDN, while promoting women entrepreneurship, participation in decision making and access to socio-economic benefits. Biodiversity values of Lake Sevan and Sevan National Park are well known but the biodiversity hot spots outside of the protected areas are less known and studied, and the project will raise awareness on their importance.

**187.** The awareness and training events are proposed as follows:

**a) Awareness events**

- Project launch in Yerevan and six subsequent inception workshop events in Gegharkuni selected communities (Martuni, Vardenis, Shogakat) and in Vayots Dzor selected communities (Vayk, Jermuk and Yeghegis) in order to raise awareness of local authorities and local communities in villages about the project, its objective and aimed results and mobilise local participation.
- Awareness raising campaign consisting of at least twenty awareness raising and education events (including workshops, seminars, radio and TV talk shows; social media events; direct messaging; knowledge fairs and thematic exhibitions; farmers-to-farmers knowledge exchange in targeted villages; online awareness campaign) in the targeted communities ( Martuni, Vardenis, Shogakat, Vayk, Jermuk, Yeghegis) and other selected villages, building on the Behaviour change analysis conducted during the

PPG stage (please see Annex 23) and benefiting farmers, livestock entrepreneurs, community members, agriculture extension service and local authorities. In the urban centres (Martuni, Vardenis, Vayk) there is a general perception that the management of rural communities is not a priority. The project will therefore seek to changing this perception, using advocacy materials and emotional appeals that highlight the importance of living in harmony with nature, ecotourism, sustainable pasture management, regenerative agriculture and sustainable use of biodiversity. The awareness events could be (when possible) linked to local festivals e.g. Ecotourism Festival; Lavash Festival, Honey Festival, Cultural Arts and Crafts Festival, Gata Festival etc). These events could use pooled resources however it should be noted that the GEF supported awareness events/segments will focus on the project's relevant topics and showcasing project's results: (i) seminars on land degradation neutrality (LDN) and regenerative agriculture and benefits to local communities (ii) seminars on the Importance of sustainable pasture and grasslands management as environment and food security assets (iii) addressing *water-land* integrated management under climate change predicted scenarios of water scarcity in Armenia (iv) awareness/education events or social media events on Sevan Ramsar site, nature reserves and sanctuaries, showcasing the importance of ecological integrity of KBA/IBA to preserve ecosystem services that supports livelihoods including potential for ecotourism (v) PAs system and biodiversity management, the role of local communities to preserve key biodiversity values; (vi) Ecotourism; (vii) Wildfire prevention/awareness etc. These awareness raising events will be organised by the Project (Ministry of Environment (EPIU)/UNDP/WWF Armenia) in cooperation with the media and environmental journalists that are trained in environmental reporting and related programmes/news platform such as: Ecolur Environmental News; Eco-Media; Eco-News; National radio and TV broadcast agencies. Cooperation with different government agencies: "BioResources" Management Agency and Environmental Monitoring and Information Center (both under the Ministry of Environment); Hayantar SNCO; different financing institutions; National Union of Farmers in Armenia; Sevan National Park; Ministry of Education and Science; Ministry for Emergency Situation; Ministry for Communication; National Academy of Science. Various environmental NGOs: Armenian Environmental Front Initiative; Armenian Environmental Network; Young Biologists Association; Green Union of Armenia; Caucasus Nature Fund; Eco House and Camp; REC Caucasus; Environmental Public Advocacy Center, as well as international organizations FAO, GIZ, USAID, WB, ADB, EBRD. Women organizations such as Green Lane Agricultural Assistance; Shen NGO; ESF NGO; Armenian Women for Health and Healthy Environment and local NGOs such as Municipal Women Council of Martuni NGO (in Martuni); Blejan NGO (in Gavar).

- Joint events: The project will organize at least two joint events on LDN and biodiversity values in Sevan Basin together with FAO/LDN and EU4Sevan projects on common topics.
- The project's final conference in Yerevan will present project results, a video documentary, generated knowledge and best practices codified and captured into knowledge outputs. Governors of Gegharkunik and Vayots Dzor and the local Self Government from (potentially) all the communities in Sevan Basin will be invited to participate and learn from the results obtained in the project targeted communities with a view of replicating the business models that are tested based on the AgriPayment Scheme. The project will prepare and present a Scaling-up Strategy and Action Plan, that will be endorsed by the Project Board, entailing all project's generated knowledge and knowledge products as well as an Action Plan with proposed measures, institutional roles and responsibilities and investments needed for scaling up the project demonstrated good practices in other regions of the country.
- Knowledge sharing generated within the project will include information, brochures and guidelines describing practical application of SLM/water saving measures at farm level highlighting economic and ecological benefits derived from different measures: farm level pasture management, land reclamation measures on marginal saline lands, farm level alternative livelihoods, farm level model business planning, water saving technology at farm level etc. Furthermore, together with the Ministry of Environment Media/PR department the project will develop short informative video documentaries on the project results and will disseminate the information through national media. Dedicated project website with moderated forum linked with *Telegram* social networks of pasture users' groups and water users' groups will be developed (as feasible). The project will share experience on available knowledge platforms such as the national platform titled "The coordination of programs aimed at the sustainable management of natural grazing lands, pastures and grasslands "set up in 2018 by GIZ, WB CARMAC Project and SDA NGO. Furthermore, sharing knowledge through UNCCD and other partners'

platforms will be explored e.g., Caucasus Regional Center; WWF Armenia networks; FAO platforms; the World Overview of Conservation Approaches and technologies (WOCAT) platform etc.

- Radio based agricultural extension service: In cooperation (through MoU) with the Public Television and Public Radio of Armenia the project will create/support a tailored made radio agriculture advisory programme that will provide targeted advice to farmers on regenerative agriculture that will preserve soil productivity and biodiversity. Radio is a very accessible information tool in rural areas and help connect the farmers to technical specialists, policy-makers other farmers, suppliers or buyers. The radio broadcasting will be explored not only as a project result disseminating tool but also as a resource to strengthen extension services. With the support of the PR/media company the project will organize the design and delivery of radio talk shows for farmers, including specific segments dedicated to women farmers. The content of the radio programmes will be supported by the project's Knowledge Management expert, Communication Specialist and the other project technical experts but also by the project partners in the ministries, agencies, research institutes. Based on an MoU with the Public Television and Public Radio of Armenia, the project will select a trusted radio station, known to be listened by most of the rural farmers. Within the framework of this MoU, a number of dedicated 20 radio talk shows will be designed and delivered by the project, addressing different topics, starting with the dissemination of the good practices generated and tested through this project and moving towards tailored radio programmes for farmers on their specific problems. The selected media company will further support and conduct targeted research about farmers preferences, needs, opinions and demand for information, and these results will serve as a basis for tailored content or "on-demand" radio talks. The project will also facilitate radio dialogues with speakers invited from the Ministry of Economy (Agriculture department) and other line ministries on farmer's questions and concerns. The piloted radio programme and the available international best practices<sup>40</sup> will serve as steppingstones for the development of a proposal (project concept) aiming at attracting partnerships with private sector and raising funds to set up a radio-based agriculture extension service. The presentation to potential financiers will be done with the support of the Ministry of High-Tech Industry, the Public TV and Public Radio in Armenia, Ministry of Environment, WWF Armenia, UNDP, Ministry of Economy, National Union of Farmers in Armenia. The proposal will be actively pitched to potential investors and financiers.

## **b) Training events**

**188.** The training events for natural resources users at local levels will include targeted seminars aimed at increasing farmers' technical knowledge on a range of topics such as: sustainable pasture management and rotational grazing techniques; water management and drought resilient crop farming; ecotourism; rural entrepreneurship and basic financial skills to develop and implement farm business plans and to write a bank application for concessional loans; and training to local authorities and Pasture users Cooperatives and Water Users Associations (WUAs) in writing proposals for mobilisation of funds under different relevant State supported programmes in agriculture. The beneficiaries are expected to be mainly farmers; private livestock entrepreneurs; Water Users Associations (WUAs), farmers extension services, rural women/ youth and representatives of local authorities. The project will organize a number of training events; trainings of WUAs and Pasture Users Cooperatives/extension officers are recommended to be at least 3 days long and include theory and field components. Guidelines for local farmers in local language and brochures on LDN compatible pasture and forest management as well as guidelines for rural entrepreneurship in ecotourism and agrotourism will be developed. Women participation in these trainings will be promoted and the project will ensure that 30% of the total beneficiaries will be represented by women and will include dedicated sessions for women entrepreneurs, The project will organize the following trainings at local level:

- 10 Trainings for Pasture Users Cooperatives, Local authorities (especially staff working on the local pasture management committees) and agriculture extension officers in Gegharkunik (Martuni, Vardenis , Shogakat communities) and Vayots Dzor region (Yeghegis and Vayk). The project will use the existing Manuals and Guidelines for Pasture management developed under GIZ project, and will add training modules on biodiversity mainstreaming in pastures and grasslands and focus on LDN; potential

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<sup>40</sup> <https://www.g-fras.org/en/good-practice-notes/using-radio-in-agricultural-extension.html?showall=1>

topics could include: (i) Overview of the status of pastures and grasslands and explanation of drivers of degradation; (ii) Methodology for improvement of degraded pastures and grasslands with Biodiversity benefits; (iii) Land Degradation Neutrality and how to achieve it using the right SLM measures at pasture/grasslands level. (iv) Importance of availability of native seeds. Nurseries and availability of seeds problems and solutions. (v) Pasture production and reseeded; types of pastures and grasslands; common grass species used in reseeded; land preparation for pasture rehabilitation; (vi) Pastures carrying capacity; Pasture management practices including LDN, biodiversity consideration, climate vulnerability, and gender perspective; Paelearctic grasslands and the methodologies for preserving grasslands biodiversity including fertilization, grazing and cutting management etc. (vii) Agriculture risk insurance. These trainings could be organized in cooperation with the National Agrarian University of Armenia “Agriculture Services Center” SNOC specialists.

- **Strengthening Agriculture extension services:** the project will aim at setting up a network of specialists to strengthen the agriculture extension services, and will organize a number of short-term professional training courses for : (i) leading farmers in the targeted communities, (ii) specialists with other specializations in agriculture, and (iii) members of NGOs active in agriculture sector, as providers of agricultural extension, complementing the extension services offered currently by the “Agricultural Service Center” SNOC operating within the Ministry of Economy, in order to provide agriculture extension services to local communities in SLM measures to achieve LDN and BD benefits. For these activities the project will explore pooling of resources with the FAO/GEF LDN project *Implementation of Armenia’s LDN commitments through sustainable land management and restoration of degraded landscapes*” and GIZ/UNDP EU4Sevan Project.
- **Six Farmer Field Schools** based on FAO model, organized in each community on sustainable crop farming, and biodiversity-sensitive pasture management, tactical grazing and agroforestry techniques.
- **Three trainings for WUAs** and associated farmers on the measures needed for the implementation of the water management plans; participants are firstly from the villages covered by these plans (e.g., Taratumb, Gomk, Zaritap, Martuni, Vaghashen, Asthadzor, Zolakar, Vardenik, Vardenis, Metz, Masrik, Pokr Masrik, Norakert, Geghamasar, Tsovak). Topics recommended by PPG experts will be further refined: (Water efficiency and sustainable water management. Benefits of using water meters. (ii) IWRB principle. Importance of maintaining the minimum environmental flows and ecological status of freshwater resources, wetlands, riparian areas. (iii) Crop rotation, intercropping for soil regeneration. LDN and the crop farming techniques that are preventing-reducing-restoring degraded land. (iv) Climate smart irrigation techniques; (vi) Benefits of shifting to natural eco-friendly fertilizers etc.
- **Six trainings (one in each community)** will be organized on project proposals writing for local authorities and for farmers, on mobilisation of funds under relevant state programmes and available financial products such as concessional loans; the trainings will include modules on available financing mechanisms for promotion of sustainable land/ water/forest management measures and sustainable biodiversity use, including ecotourism and agrotourism.
- **Six local training sessions:** 3 trainings in Gegharkunik region and 3 trainings in Vayots Dzor (involving if possible Gnishik EcoHouse for sharing best practices) with sessions on ecotourism and agro-tourism, promoting the involvement of women and youth; these trainings could be organized in partnership with NGOs such as: Machanents Tourism and Art; the Rural Sustainable Development Foundation and the Armenian Eco-Tourism Association NGO (Zhanna Galyan); Armenian Geographic; Young Biologists Association’ as well as NGOs promoting women in agriculture such as Green Lane Agricultural Assistance; Shen NGO; ESF NGO; Armenian Women for Health and Healthy Environment; Municipal Women Council of Martuni NGO (in Martuni); Blejan NGO (in Gavar) and others.

**189. Output 4.1.2** *Experience, best practices and lessons learned about LDN, SLM, biodiversity and water management, captured, systematized and made available through various platforms for public and private stakeholders for use in other production landscapes and catchment areas in the country and in the region*

**190.** The project’s work under this output will ensure that the knowledge products will be disseminated within and beyond the project intervention zone through existing regional information-sharing networks, platforms and forums. Activities include:

- Knowledge dissemination through trainings, thematic exhibitions and local fairs and festivals; farmers-to-farmers sharing of experience; social media, TV and radio talk shows (with distinct segment on women farmers and gender issues).

- Innovation focus: creation of new knowledge, new products (innovative crop resilience to drought; rotational grazing techniques; GPS guided monitoring of wildlife; innovation challenge)
- Growth and change focus: cooperation, replication, scaling in and scaling out (including WOCAT, platform, CARMAC Platform; FAO platforms; WWF networks).
- Internal KM focus: continuous learning from other projects' experience, from evaluative knowledge, from internal (M&E), operational and technical efficiency and effectiveness.
- Coordination with GEF/FAO LDN Project during the development of the KM products, in order to learn from FAO experience and knowledge and avoid duplication of information materials.
- Ensure that all KM and information materials are including a gender perspective.

**191.** The Knowledge Management approach includes the preparation of a *Scaling Up and Replication Strategy*, ensuring that the valuable knowledge generated during the project implementation, documenting the trailblazing efforts driving progress towards LDN and integrated land-water management in production zones, will be replicated to other regions of Armenia.

**192.** The Project Manager will ensure the collation of all the project experiences and information. This knowledge database will then be made accessible to different stakeholder groups in order to support better future decision-making processes in mainstreaming biodiversity and sustainable land management in Armenia and more consistent adoption of best practices. (*Please see Annex 22 Knowledge management Plan*). The Internal KM focus will be on continuous learning from other projects' experience, from evaluative knowledge, from internal (M&E), operational and technical efficiency and effectiveness. The project team will implement the Knowledge Management (KM) Plan in line with the GEF requirements to foster learning and sharing from relevant projects and initiatives and evaluations and contribute to the project's overall impact and sustainability.

**193. Component 5 Monitoring and Evaluation** (GEF financing \$116,000; co-financing: \$500,000)

**194. Outcome 5.1** *Project M&E system and monitoring of Global Environmental Benefits (GEB) provide for continuous learning and adaptive management*

**195.** This outcome includes a functioning project M&E system, monitoring, and assessment of global environmental benefits and co-benefits disaggregated by gender that will be generated by the project. It will also include a mid-term and final evaluation.

**196. Output 5.1.1** *Set of monitoring and evaluation activities implemented. Monitoring and evaluative knowledge systematically integrated into project management and planning.*

**197.** During the project implementation, the M&E will be conducted following GEF and UNDP guidelines. The main tasks of the M&E Plan include an inception/workshop and report, annual monitoring of indicators in the project results framework, annual project implementation reports (PIR), ongoing monitoring of environmental and social risks and implementation of Social and Environmental Standards (SES) requirements, supervision missions, updating GEF core indicators and METT (at midterm and project end), monitoring of Global Environmental Benefits, ongoing monitoring of the Stakeholder Engagement Plan and the Gender Action Plan, Project Board meetings, oversight missions by the UNDP-IRH Environment team, mid-term and terminal GEF7 Core Indicators and METT updates, an Independent Mid-term Review (MTR), Project Completion Report, Independent Terminal Evaluation (TE) and the project final conference.

- The project mid-term evaluation will be carried out with field visits to selected sites and consultation with local stakeholders and national project partners. The project independent final evaluation will also be conducted and will include review of project reports, KM products including web-based information, and field visits to selected project sites, with recommendations for ensuring sustainability of Project outcomes and the regional LDN system. Both evaluations will be carried out by teams that include gender expertise. Activities include: (i) Project mid-term evaluation with a section reporting on the implementation of the Gender Action Plan (GAP) of the project and (ii) Project final evaluation with a section reporting on the implementation of the Gender Action Plan (GAP) of the project.
- The Project M&E system will also measure the project progress and impacts in terms of multiple global environmental benefits (GEBs), and social and economic benefits. Baseline and targets for project



indicators will be refined at the project inception if needed, and used for monitoring project progress and impacts and reporting through the annual project reports (PIRS) submitted to GEF Secretariat and yearly project progress reports submitted by the EPIU to the UNDP CO. Activities include: (i) Monitoring of GEBs, including area under SLM and carbon benefits; (ii) Monitoring of socio-economic benefits using gender disaggregated data; (iii) Assessment of GEBs and co-benefits disaggregated by gender for reporting to the GEF and for the mid-term and final evaluations; (iv) Monitoring system for the progress towards LDN targets in Gegharkunik and Vayots Dzor integrated within the regional authorities/marzipetaran structure and coordinated with the LDN Monitoring System at national level, within the Ministry of Environment.

- The M&E unit of the EPIU, supported by the Forest Monitoring Center of the MoE, will contribute to the monitoring activities and processes thanks to remote sensing and photointerpretation analysis via drones available at the MoE. The combination of georeferencing, ground truthing, monitoring and discussion with communities and remote sensing analysis will allow stakeholders, including the GEF, to have a clear understanding of the project's effectiveness and efficiency and results on the ground.

**198.** The Project Manager, supported by the technical team, Forest Monitoring Center of the MoE, and the project's M&E/GEB expert will ensure that all M&E activities are conducted according to GEF/UNDP procedures and the evaluative knowledge and information will be testing ToC assumptions and supporting the project's adaptive management.

#### Partnerships:

**199.** The project will coordinate actions with the GEF LDN project *Implementation of Armenia's LDN commitments through sustainable land management and restoration of degraded landscapes* currently under implementation. IN particular coordination of actions will be sought regarding the link of the UNDP/GEF project reporting of progress towards regional LDN targets in Lake Sevan basin landscape with the FAO/GEF P project supported national level LDN enabling framework, including the strengthened UNCCD Committee and reporting LDN mechanism from regional to national level. The UNDP GEF project will harmonize the methodologies for LD data collection, and in this regard the UNDP GEF project will use the *Earth Engine* software developed by FAO in coordination with UNCCD and will build on FAO's experience in Armenia with regard to the data collection for LDN baseline assessments and progress monitoring. Both projects will coordinate for the organization of joint trainings on LDN and biodiversity friendly value chains- related capacity building for local authorities and local natural resources users, and exchange good practices in setting LDN targets at regional (sub-national) levels and measures and incentives for LDN implementation. In addition, both projects will harmonize approaches with regard to inter-sectoral coordination for LDN. The FAO project will support the setting up of an LDN coordination mechanism at regional level (in Lori and Syunik regions) and will mainstream LDN requirements into the national enabling policy framework; FAO project will strengthen the capacity and mandate of the UNCCD Committee to implement LDN and monitor LDN implementation. As such, both projects will exchange lessons learned in setting LDN subnational targets, and on monitoring and reporting LDN progress from subnational to national levels (Output 1.1.3).

**200.** The project will also coordinate efforts with the EU funded EU4Sevan project, currently under implementation jointly by UNDP and GIZ. The main objective of this project is to enhance the environmental protection of Lake Sevan by improving water monitoring and management capacities for Lake Sevan watershed, implementation of SLM and ecosystem-friendly and water protecting land use and cultivation practices and capacities for implementing wastewater treatment and awareness. The coordination of the UNDP/GEF project with the EU4Sevan project will revolve around the improvement of capacities of the Sevan National Park for biodiversity management and promotion of SLM and biodiversity-sensitive practices (Output 5 and Output 2 under EU4Sevan project), and discussions during the PPG phase have ensured coordination in the selection of project sites, and also highlighted that there is ample scope of knowledge sharing and good practices sharing across the targeted communities by the two projects, in the form of joint KM and PR events. In addition, the UNDP components of the EU4Sevan (UNDP component) will develop the Sevan National Park Management Plan and the UNDP/GEF Project will support the park with improving its capacity for the implementation of the EU4Sevan Management Plan (e.g., patrolling and biodiversity monitoring; business opportunities and improved financial management). In addition, the UNDP/GEF Project will closely coordinate with the GIZ implemented

component of the EU4Sevan Project and will exchange experience and lessons learned on the type of SLM measures (e.g., replacing chemical fertilizers with natural fertilizers; using intercropping to enrich soil fertility, agroforestry etc.). In addition, the UNDP/GEF project will support an assessment of the Sevan River system's ecological condition, and analysis of sources of eutrophication. In this regard it will closely coordinate with the GIZ activities and exchange knowledge products and findings of assessment results, in order to avoid duplication of efforts and learn from each other, and more importantly, come up with joint recommendations/solutions for the decision makers.

**201.** The project will build on the results of the GIZ project “Sustainable Management of Biodiversity, South Caucasus” and the platforms, materials, manuals and guidelines on pasture management developed including the GIZ founded the Platform for Sustainable Pasture Management. The GEF Project will contribute to the “Platform for Sustainable Pasture Management” with lessons learned and knowledge product in order to educate about LDN compatible SLM practices. In addition, the GEF project will take up GIZ suggestions to organize trainings on GIS for the local authorities in the local (amalgamated) communities and train local specialists/engineers (in partnership with the State Cadaster Committee) in order to support their capacities to collect data and make use of satellite imagery analysis and GIZ supported maps, and conduct assessments of land degradation and land use, pasture degradation and identification of management measures. The Project will also build on ECOServe project's results and will work with the GIZ supported GIS analysis data and lessons learned on pastureland and forest management submitted to the Ministry of Economy. The GIZ Project SEVAMOD has resulted in valuable research results that will be considered by the GEF project's envisaged freshwater assessments, in particular recommendations of the GIZ proposed Lake Sevan Nutrient Management Concept.

**202.** The project will also build on the best practices of the WWF Armenia's Project “*Promotion of Eco-Corridors in the Southern Caucasus Phase I*” Project, in securing community-supported ecological corridors based on the “community caretaker” approach and will use the approach described in the WWF developed “Menu of Conservation Measures Manual” (2018). Under this project, the WWF Armenia had brokered signed agreements with local communities in support of ecological corridors to facilitate wildlife migration. The ECF Programme is funded by the German Government (German Federal Ministry for Economic Cooperation and Development BMZ) through the KfW Development Bank and by WWF Germany and has set up an “EcoRegional Corridor Fund-ECF” -an instrument for promoting sustainable land use practices in ecological corridors through contractual nature conservation, essentially a form of payment for ecosystem services. The financial resources provided by the ECF are supporting sustainable land use in selected eco-corridors in the Caucasus habitats, and the financial resources provided are helping the rural communities living in the eco-corridor's areas manage their land in an ecologically healthy way. The project will build synergies with WWF Armenia's Project “*Promotion of Eco-Corridors in the Southern Caucasus Phase II*”. The WWF Armenia project will focus on Vayots Dzor region and the GEF project will focus on Gegharkunik region, thus complementing each other and joining efforts to provide targeted resources for mapping of key biodiversity values within the zones of valuable and/or vulnerable biodiversity of the Southeastern Lesser Caucasus Corridor in Gegharkunik and Vayots Dzor regions.

**203.** The project will build synergies/learn from EU-Green Agriculture Initiative in Armenia (EU-GAIA) currently under implementation by UNDP. This project is focusing on different communities in Shirak, Lori and Tavush regions, on supporting local communities at high altitude ecosystems. Both projects will exchange knowledge and good practices and will organize joint awareness and training events on promoting environmentally friendly agri-businesses and right based approaches that benefit local livelihoods and valuable ecosystems. The Project will explore a partnership with the GEO-LDN network in order to facilitate the piloting of the UNCCD-endorsed software LUP4LDN that is expected to be improving land use management and will be supporting regional and community level authorities to develop land use plans compatible with LDN targets. The partnership with GEO-LDN will improve national and regional/local authorities' access to technical expertise, access to EO data sets reporting protocols, and analytical tools for improved land management.

**204.** The project will coordinate activities with the Adaptation Fund (AF) Project “Increased climate resilience of South Caucasus Mountain communities and ecosystems through wildfire risk reduction”. The project seeks to increase resilience of mountain communities and forest ecosystems to climate-induced hazards, and in particular to the increasing risk of forest wildfire in mountainous regions of the Southern Caucasus. The GEF project will support sustainable forest management plans (under Output 3.1.3) and will work with the “Hayantar” State Non-Commercial Organization (SNCO— state-owned enterprises) of the Ministry of Agriculture

in coordination with the Adaptation Fund Project, building on this project's generated knowledge and experience in wildfire and forest management plans and risk reduction measures at community level in Vayots Dzor region.

**205.** The successful implementation of the project will largely depend on effective communication and coordination with multiple project stakeholders and the implementation of mechanisms to ensure these stakeholders' participation. The key national and sub-national stakeholders include: (i) Ministry of Environment which is the Implementing Partner of this project, offering co-financing of project activities under Component 1 (Output 1.1.1), Component 2 (Output 2.2.1) and Component 3 (Output 3.1.1) and project management as well as facilitating synergies with the on-going state programmes for example the "Sevan National Park restoration, preservation of forest ecosystem and management of freshwater resources" and "Programme of establishing new forest stands around Lake Sevan 2014-2023". The agencies under the Ministry of Environment's mandate such as Hayantar and National Park Sevan SNCO will be key in achieving project Outcome 2 and Outcome 3. (ii) Ministry of Economy is a key partner in this project which will offer co-financing for activities under Component 3 (Output 3.1.1, 3.1.2, 3.1.3) and will facilitate project's synergies with the relevant state programmes related to the Strategy of main directions ensuring economic development in agricultural sector of Armenia 2020-2023; (iii) Ministry of Territorial Administration and Infrastructure is a key partner in this project and will support LDN and SLM measures to achieve land degradation neutrality under Component 1 and Component 3. Partnerships with other state agencies as well as with NGOs will be equally important to the achievement of project outcomes for example with the media and environmental journalists that are trained in environmental reporting and related programmes/news platform such as: Ecolur Environmental News; Eco-Media; Eco-News; National radio and TV broadcast agencies. Cooperation with different government agencies: "BioResources" Management Agency and Environmental Monitoring and Information Center (both under the Ministry of Environment) for the support in data collection and assessments as well as education and awareness activities. Partnership with the National Union of Farmers in Armenia; Ministry of Education and Science; Ministry for Emergency Situation; Ministry for Communication; National Academy of Science will be key to reach Outcome 3.

**206.** Partnerships and synergies with various environmental NGOs: Armenian Environmental Front Initiative; Armenian Environmental Network; Young Biologists Association; Green Union of Armenia; Caucasus Nature Fund; Eco House and Camp; REC Caucasus; Environmental Public Advocacy Center, as well as international organizations FAO, GIZ, USAID, WB, ADB, EBRD will be sought especially for the education and awareness activities under Outcome 4. Women organizations such as Green Lane Agricultural Assistance; Shen NGO; ESF NGO; Armenian Women for Health and Healthy Environment and local NGOs such as Municipal Women Council of Martuni NGO (in Martuni); Blejan NGO (in Gavar) will support the project's gender advocacy and gender mainstreaming. Partnership with the State Radio and TV Broadcasting Companies will support the setting up of radio agricultural extension services to reach out to remote communities. Partnerships with local private livestock entrepreneurs, farmers, eco-tourism entrepreneurs will be sought as well. The project will work directly with with small-scale agricultural producers, including those producing crops, and those in the livestock sector. The land and water resources of the target region cannot be sustainably managed without the full cooperation and support from the private sector. The project will directly engage and involve local small holders in the agricultural sector, which are by and large the main relevant private sector actors with respect to sustainable land use in the rural areas targeted by the project.

**207.** The project will work with the "Gegharkunik" Water Users Associations and "Yeghegnadzor" Water Users Associations (WUAs) in both regions to support the development of integrated LDN compatible water/land management plans and implement non-depleting agricultural practices that are LDN compatible and have lower environmental impacts (e.g., drip irrigation) (Output 3.1.2). The project will engage with the Gegharkunik and Vayots Dzor Regional Farmers Council and with pasture users associations/livestock private entrepreneurs in select municipalities in order to support the sustainable pastureland/grassland management plans and implement KPI based agro-environmental payments (Output 3.1.1) Furthermore, the project will work with "Hayantar" State Non-Commercial Organization (SNCO– state-owned enterprise) for the development of sustainable forest management planning and forest restoration activities (Output 3.1.3) and will engage with business associations and small scale tourism businesses in the local targeted areas develop nature-based tourism schemes. Facilitation of public private partnerships will be supported including the possibility of engaging with responsible tourism businesses e.g., hotels/tourism operators in private sector supported programmes to raise awareness of the Lake Sevan Ramsar site values, bird watching and camping opportunities through guides, booklet, support to visitor center, specifically tailored guided tours learning activities (Output

2.1.2; 3.1.4). The possible involvement of mobile phone operators in innovative PA funding (e.g., crowdfunding) will be also explored through the Innovation Challenge (Output 2.1.2). The project’s engagement with the private sector will further extend to coordination with financing institutions, investment funds and NGOs in promoting green lending to support responsible and sustainable agriculture and in the design and delivery of targeted trainings for natural resource users (Output 4.1.1) e.g. ACBA Credit Agricole; Armenian National Investment Fund (ANIF); Development and Investment Cooperation of Armenia (DICA); Centre for Agribusiness and Rural Development (CARD); the International Centre for Agribusiness Research and Education (ICARE). The UNDP’s policy on due diligence and partnerships with the private sector will be applied to the project’s work with private sector, especially pertaining to co-finance from private sector for project activities.

**208.** Key points of the full Due Diligence Procedures: Pro-active outreach through “pre-screening” which includes that the partner does not fall under the **exclusionary criteria**; After the exclusionary criteria is passed, the full diligence should be undertaken; The Due Diligence process starts with a series of assessment criteria that needs to be followed (Due Diligence Assessment Criteria: e.g. responsible leadership, Human rights, Labor, Communities, Environment, Governance, Product-related, Ownership or management. The overall eligibility criteria also include a UNDP Risk Assessment Tool for Private Sector Partners. The Risk assessment will be conducted/ensured by the Project Coordinator in the Initiating Unit and the UNDP Results and Quality programming in Development Impact Group in BPPS provides support in the process.

**209.** The type of partnership and the sector defines how rigorous background checks need to be done. As per UNDP policy, for those partnerships that do not involve a close engagement (e.g. an advocacy or policy dialogue event or financial contribution under US\$100,000) and in which the private sector entity is from a low-risk sector, a reduced level of due diligence may be applied. It will be enough to assess the private sector entity only against UNDP’s exclusionary criteria and check if the private sector entity is involved in any controversies. The decision on whether or not to proceed with engagement with a partner will be taken based on a completed due diligence including a risk/benefit analysis of the partnership aligned with the risk tolerance of UNDP. It is essential that there is a separation between the staff who are directly involved in developing relationship and making a recommendation as to whether or not to process and the staff who make the final decision. All decisions related to partnerships with companies to which exclusionary criteria apply and potential partners exposed to significant controversies must be escalated to UNDP HQ. For potential partners that have been screened by other UN organizations, UNDP will use such a due diligence as a basis and will only undertake complementary diligence on criteria that may not be covered. The UNDP SES requirements will be applicable to all activities (including activities executed by Responsible Party) funded from funds that are disbursed through UNDP accounts, case in which the activities will “adhere” to the UNDP SES requirements. In the case of co-financed activities, the project team will ensure “consistency” with UNDP SES requirements. The difference between GEF/UNDP financed activities (i.e. funds managed from UNDP accounts) and co-financed activities (funds from in-kind or parallel funding for activities that are part of the project framework/results but that are not disbursed through UNDP accounts) in terms of alignment with UNDP SES is that “while UNDP does not ensure adherence to UNDP SES requirements beyond activities funded through UNDP accounts, the entire project is however reviewed for consistency with the requirements of the UNDP SES” (as per UNDP SES guidelines).

**210.** The co-financed outputs of the main partners are briefly presented in the table below:

Co-financing source	Co-financing type	Co-financing amount	Included in project results?	If yes, list the relevant outputs
Ministry of Environment	Public investment/Investment mobilized	23,875,763	Yes. The co-financed amounts are not managed through UNDP account	Output 1.1.3: investment is related to the facilitation of inter-sectorial coordination; advancing LDN agenda, biodiversity mainstreaming within Lake Sevan River Basin landscape. Output 2.1.1: investment is related to the management effectiveness of the Sevan National Park

				<p><i>Output 2.2.1: investment related to support to biodiversity inventories</i></p> <p><i>Output 3.1.1: investment consists in directing funds (incentives for biodiversity preservation in pastures and grasslands) to Agri-Environmental Payment Scheme</i></p> <p><i>Output 3.1.3: investment related to sustainable forest management including around Lake Sevan KBA/IBA</i></p> <p><i>Output 4.1.1.: investment related to joint awareness and education events</i></p> <p><i>PM: co-financing project management activities.</i></p>
Ministry of Economy	Public investment/Investment mobilized	2,000,000	Yes. The co-financed amounts are not managed through UNDP account	<p><i>Output 1.1.1 investment related to: support to assessment of land degradation and LDN monitoring; data collection support during the assessment of the river systems connected to Sevan Lake, facilitating synergies with GIZ supported projects/results.</i></p> <p><i>Output 3.1.1 investment related to sustainable pastures/grasslands management including support of financing the Agri-Environmental Payment Scheme to be set up by the project.</i></p> <p><i>Output 3.12/3.1.3 and 3.1.4 investments directed towards supporting different SLM measures through relevant state programmes.</i></p>
WWF Armenia	Grant/Investment mobilized	695,000	Yes. The co-financed amounts are not managed through UNDP account	<p><i>Output 2.1.1.: investment related to support biodiversity assessments, data collection, trainings of PA staff on wildlife monitoring.</i></p> <p><i>Output 2.2.1 and 3.1.4: investment related to co-financing of biodiversity mapping in Vayots Dzor region</i></p> <p><i>PM: co-financing project management activities.</i></p>
UNDP Armenia	Grant/Investment mobilized	3,031,000	Yes. The co-financed amounts are not managed through UNDP account	<p><i>Output 2.1.1 investment related to the co-financing of the improved management effectiveness of Sevan National Park</i></p> <p><i>Output 3.1.4 investment related to support sustainable land management measures (SLM).</i></p> <p><i>PM: co-financing project management activities.</i></p>
UNDP Armenia	UNDP TRAC funds	100,000	Yes; managed through UNDP account	<i>PM: co-financing project management activities.</i>

**211. Risks:** As per the standard UNDP requirements, the Project Manager (with the support of M&E specialist) will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability are high (i.e., when impact is rated as 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks, as well as environmental and social grievances will also be reported to the GEF in the annual PIR. The detailed risk management strategy for the project is included in *Annex 6: UNDP Risk Register*.

**212.** There are two main types of risks: a.) external risks to the success of the project; and b.) social and environmental risks related to project implementation that could lead to unintended negative consequences. Multiple risk analyses were conducted during the PPG phase to identify these two types of risks related to the project. For the first category of risks, nine risks were identified, and are summarized in the table below. With regard to the climate risks, the increasingly dry and arid climate is making forest ecosystems vulnerable to

wildfires especially in Vayots Dzor region. The vulnerability of the agriculture sector to climate change is relatively high, and it considerably varies across land zones and crops. For example, the vulnerability of agriculture is more significant in low and medium altitude zones in Armenia, while in the highland mountainous zone risks associated with climate change are comparatively less evident. About 80% of the territory of Armenia is exposed to various degrees of desertification, which is not only the consequence of anthropogenic activity, but also a consequence of water and wind erosion of soils, hot dry spells, drought, lack of humidity, landslides, natural salinization etc. Climate change, along with various anthropogenic phenomena, contributes to the vulnerability of organic carbon reserves in soils.<sup>41</sup> Based on the PPG risk assessment, the project falls into Moderate climate risk category and it includes climate sensitive- SLM measure, ISLUPs and biodiversity spatial elements (including consideration of potential climate impact on species migration or vegetation cover) as a management strategy to further address/integrated climate change aspects detailed in the project document under different Outcomes and Annexes 16,18 and 20. Climate parameters and future projections of land suitability into different assessments will provide targeted resilience measures and sustainability of SLM measures and ISLUPs. An assessment of the vulnerability of livelihoods in the areas of intervention, including natural disasters, will be undertaken as part of targeted assessments of the project. Furthermore, additional attention will be given to data showing the impact of climate change influences landcover and land user in the country and how projected future climate change will continue to impact the project area. Together with the specialized MoE departments, the project will explore using the project-born climate risks analysis during the LDN target setting and ISLUPs development to the reports under the UNFCCC (e.g MRV, NDC, BTR etc).

**213.** Additional two external risks have been added due to recent developments: (i) The (Risk 1)- Security risk related to the potential project delays due to the suspension of any field activity and/or mission in the pilot demonstration areas (pastures and grasslands) selected near the community of Vardenis. In order to mitigate these risks, the demonstration areas have been selected during the PPG at least at a distance of 3 km away from the border. Nevertheless, any existing UNDP CO protocol for security in areas that are prone to risk will complement the UNDP SES protocol, and regular monitoring and risk assessment will indicate whether these pasture areas situated near this border (btw 30,000- 50,000 ha) will need to be reconsidered and selected elsewhere. During the PPG stage such a need was not deemed necessary, and the 2-3 km buffer was deemed sufficient. However, at the inception stage the project will re-assess the locations of pastures and forest demonstration areas selected near Vardenis for potential replacement in a secure area. (ii) The (Risk 9)- associated with the potential social local protests in the enlarged communities that may impact negatively the project activities. The risk will be addressed by a re-assessment of the local social situation (and potential discontent triggered by the local amalgamation process and merging of small villages/communities) upon the inception stage and by UNDP CO facilitated local dialogues in order to ascertain and strengthen the local commitment and participation in the project activities. Further regular project risk assessment will be deployed and will indicate whether there are any prospective changes to any of the selected pilot community status in terms of potential change to their administrative territory, borders and any other legal modifications that may affect project activities. The Risks are further described in the *in the table below*:

Identified Risks and Category	Impact	Likelihood	Mitigation Measures
<b>Risk 1:</b> There is a risk of project delays, related to the proximity of the selected pasture areas located near the eastern border of the Vardenis community in case of new escalation. These areas are part of the Vardenis side of the eco-corridor of the South-East Lesser Caucasus.	<b>I=3</b>	<b>L=3</b> <b>Moderately likely</b>	The project will re-assess the situation at the inception stage. Approximately <b>30,000</b> hectares of pastures in Vardenis area may be replaced with similar pasture areas in other communities. The project manager, UNDP CO and senior UNDP management will continue monitoring the situation at the border and inform the project team, implementing appropriate risk management measures as per the UNDP policies and procedures and UNDP CO corporate risk management instructions.

<sup>41</sup> [https://unfccc.int/sites/default/files/resource/NC4\\_Armenia\\_.pdf](https://unfccc.int/sites/default/files/resource/NC4_Armenia_.pdf)

Identified Risks and Category	Impact	Likelihood	Mitigation Measures
<p><b>Risk 2:</b> Conflicting government priorities relating to agricultural production and sustainable land use could lead to limited progress in achieving the project's intended outcomes and limited results in the conservation and restoration of degraded lands, and the protection of critical habitats for the long-term maintenance of ecosystem services necessary to support sustainable livelihoods.</p>	<p>I=3</p>	<p>L=2 <b>Moderately likely</b></p>	<p>UNDP CO will organize regular quarterly Strategic Risk Meetings chaired by the RR in order to monitor the progress towards the formal approval of strategic project outputs (such as ISLUPs/Integrated Land Use Plans; Sustainable Water Management Plans; LDN targets and Action Plans; Legal amendments to Pasture Law) and address the risk of not securing the official/formal approval of these strategic outputs-which would impact the progress towards outcomes and strategic objective. In case of such a risk, high level meetings with the national counterparts will be organized by UNDP CO and these high-level discussions will be expected to mitigate the risk and secure political support and formal approval of the project results.</p> <p>The Risk will be attentively monitored by UNDP and its rating will be changed to High/Critical if needed.</p> <p>The risk is mitigated through different activities. The project will be closely working with a range of government stakeholders, partners, and resource users and managers and will organize education and awareness events (under Component 4) on the need to manage land and water resources in an integrated and sustainable way that will not deplete soil productivity and will not impact negatively on biodiversity. Through stakeholders' coordination committee meetings (under Component 1/Output 1.1.3) the project will facilitate inter-sectorial stakeholders consultations, expected to raise awareness and knowledge on LDN and integrated land use plans and biodiversity values. In addition, the regional LDN and ISLUPs and Sustainable Water/Land Management Plans will create a framework for Sustainable Land Management (SLM) measures and progress towards LDN and a more sustainable water use. Furthermore, the project will work to identify any critical conflicts in government policies and strategies relating to agricultural production that would potentially diminish the potential to achieve the project objective.</p>
<p><b>Risk 3:</b> The project is very likely to face operational difficulties and delays associated with the new execution modality, being one of the first projects in the country with the full NIM management arrangements.</p>	<p>I=3</p>	<p>L=2 <b>Moderately likely</b></p>	<p>Although the core capacities of the Implementing Partner are sound, the human resources are limited (enabling environment and technical capacity). Capacity limitations along with the lack of direct experience in direct implementation of large-scale projects call for targeted capacity building (particularly hands-on experience and learning by doing) is considered as the major risk mitigation measure.</p>

Identified Risks and Category	Impact	Likelihood	Mitigation Measures
<p><b>Risk 4:</b> The project impact on the status of biodiversity and KBAs might be limited by climate change as a direct driver of habitat conversion and biodiversity loss in the country.</p>	<p><b>I=3</b></p>	<p><b>L=2</b> <b>Moderately likely</b></p>	<p>Assessments of climate change effects within the targeted PA and ecosystems in Lake Sevan Basin will be included in the advanced management planning instruments such as the new PA integrated data base including multi-data assessments, to be developed with the project support. Assessment of climate change effects within the targeted regions and PAs and ecosystems will be included in the Integrated Spatial and Land Use Plans (ISLUPs). The project will make sure that the spatial development scenarios are reflective of the climate change threats and impacts, and climate resilience and adaptation solutions are considered within the (i) spatial development priorities for the areas that are vulnerable to and/or affected by climate change effects and (ii) informing the sustainable pastures, forest and water management plans developed for the selected areas in the PA/KBAs vicinity.</p>
<p><b>Risk 5:</b> There is a risk that the sustainable biodiversity finance mechanisms (e.g. Agri-environmental Payment Scheme) and incentives aimed at mainstream biodiversity-friendly sectoral practices will not prove their desired financial effect, and the financial viability may not be sufficient to upscale those instruments in the long term.</p>	<p><b>I=3</b></p>	<p><b>L=3</b> <b>Moderately likely</b></p>	<p>In response to this risk, the project will perform a comprehensive cost-benefit analysis of the proposed finance opportunities and continuous advocacy and organization of regular high-level meetings between RR and high-level decision makers for the materialization of the co-financing pledges and for advocating for the institutionalization of Agri-Environmental Payment Scheme to be demonstrated by the projects</p> <p>In addition, Armenia will be included in the first cohort of countries under the new Umbrella project on Global Biodiversity Financing (UNDP/GEF). The latter will support the identification of new domestic resources streams and will develop a Biodiversity Development Plan. This alone does not secure financing of the Agri-Environmental Payment Scheme; however, it supports the decision makers to make informed decisions and allocations of financing towards nature positive solutions and financing mechanisms.</p>
<p><b>Risk 6:</b> Project activities involving local/field interventions and close engagement with local communities may inadvertently contribute to the spread of COVID-19.</p>	<p><b>I=3</b></p>	<p><b>L=3</b> <b>Moderately likely</b></p>	<p>The risk will be mitigated through SESP, and implementation of adequate safeguards management such as: (i) clear procedures in place in case of COVID19 reinstatement of restrictions, approved during project inception (ii) use of protective equipment, maintaining social distancing and using remote methods of engagement whenever possible (iii) if adequate safeguards cannot be put in place, activities that entail close local communities engagement will be put on hold if necessary, and work programme/budget will be revised as needed. Wherever possible on-line meeting platforms will be used, and travel decreased. All project meetings will be organized mindful of government regulations and health standards and other appropriate safeguards</p>



Identified Risks and Category	Impact	Likelihood	Mitigation Measures
			(including those of UNDSS). Under Output 3.1.4 the project will support the development of COVID-19 safe tourism protocols by working with the National Tourism Committee and will apply/test these safety protocols within the tourism itineraries/packages supported by the project.
<p><b>Risk 7:</b> Project delays due to COVID 19 reinstated restrictions</p>	<p><b>I=3</b></p>	<p><b>L=2</b> <b>Moderately likely</b></p>	<p>The measures to mitigate any implementation delays that may result due to potential reinstatement of the COVID-19 related restrictions. UNDP issued corporate guidance on “Managing programmes and projects in the age of Covid-19”. These guidelines will be included in the Project COVID-19 Response Strategy. This Strategy will be presented and approved at Inception Workshop along with the main health safeguards that will be implemented during the implementation to protect people and environment and prevent the virus spread (i.e. use of masks, social distancing, remote meetings whenever possible; remote field monitoring as much as possible). The risk to the project posed by potential reinstatement of restrictions (travel; lockdown, others) will be mitigated through several steps that could include (but will be not limited to) : (i) Re-assessment of the COVID-19 restrictions on the AWP implementation (ii) Create/activate stakeholders and key project partners Telegram/Zoom group and move all the meetings online (iii) if activities will be delayed a few months but workplan will deliver on time and within budget, no formal revision is needed (iv) if activities cannot be completed on time, workplan will be revisited and budgets revised/ clearance by online Board meetings (v) if local activities and local field staff can continue activities, monitoring will be done remotely (using photos from the field) or through a virtual mechanisms (project will reach out to community leaders and key partners in the field who can ensure that activities will be aligned with the needs and take into account the constraints faced by the community. The project will ensure that adequate protective gear is handed over to local field staff and community members and that social distancing and other health safeguards are in place. UNDP TRAC unspent balance can be repurposed to COVID-19 in case of <i>force majeure</i>.</p>
<p><b>Risk 8:</b> There is a risk that the planned partnerships with the private sector partners in tourism sector will fail to yield the expected benefits. The negative effects of the post-COVID 19 recession may hamper project plans towards private sector engagement, especially for the tourism sector</p>	<p><b>I=3</b></p>	<p><b>L=2</b> <b>Moderately likely</b></p>	<p>The project will implement capacity building activities to make sure that the targeted tourists’ entrepreneurs are able to apply for economic recovery funds in a sustainable manner and are supported to promote eco-tourism products; the technical expertise provided by the project will support the facilitation of PPPs with the Lake Sevan National Park for the low-impact eco-tourism products and valorization of Sevan Ramsar site. Finally, the GEF increment for promotional activities</p>

Identified Risks and Category	Impact	Likelihood	Mitigation Measures
most severely affected by COVID-19 pandemic.			will hopefully become one of the principal risk management measures and will help mitigating the obstacles towards tourism sector business engagement.
<b>Risk 9:</b> Increased incidence of climate-induced wildfires in targeted project sites may affect project's results in the field.	<b>I=3</b>	<b>L=3</b> <b>Moderately Likely</b>	The increasingly dry and arid climate is making forest ecosystems vulnerable to wildfires especially in Vayots Dzor region. An additional risk factor is the negligence of tourists and/or slash and burn agriculture practices. The project has included training and awareness raising at local levels. Strengthening of fire-fighting equipment base and fire-fighting capacities and knowledge of the PA staff and local communities-based volunteers and rapid intervention squads. Project activities include appropriate mitigation such as: development of climate resilient forestry management plans in targeted communities; supporting elaboration of disaster risks reduction planning at community level and establishment of volunteers' teams; tailored awareness and training activities and strengthening firefighting equipment at PA and local communities' levels.
<b>Risk 10:</b> There is potential risk to project implementation due to potential discontent at local level following the local amalgamation process, that may delay project activities.	<b>I=3</b>	<b>L=2</b> <b>Moderately likely</b>	The risk will be addressed by a re-assessment of the local social situation and potential discontent during the inception stage by IP, RP and UNDP CO facilitated local dialogues in order to strengthen the local commitment to the project activities. Further regular project risk assessment will be deployed and will indicate whether there are any prospective changes to any of the selected pilot community status in terms of potential change to their administrative territory, borders and any other legal modifications that may affect project activities.

*Legend: Likelihood was assessed based on a scale of 1-5 (1=Not likely; 5=Expected) and Impact rated based on a 1-5 scale (1=Negligible; 5= Extreme). Based on Likelihood and Impact the project used the UNDP Risk Matrix to identify Risk level (High, Substantial, Moderate or Low).*

**214. Social and environmental safeguards:** In terms of social and environmental risks related to project implementation that could lead to unintended negative consequences, during the PPG phase the project has been reviewed against UNDP SESP (2021 version). The analysis identified 13 potential social and environmental impacts associated with the project activities (Project Document Annex 9).

**SES 1.** Vulnerable groups (smallholders with less land and capacities) including women and women entrepreneurs, might not be engaged in and/or benefitting from the project activities. Project activities may not fully incorporate or reflect views of women and ensure equitable opportunities for their involvement and benefit.

**SES 2.** Duty bearers-national and local government institutions responsible for the regions (marzes) and local land use planning do not have adequate technical capacity to plan and enforce in a participatory manner the integrated LDN-compatible land use planning and mainstream biodiversity considerations into local strategies.

**SES 3.** The LDN compatible Integrated Land Use Plans, the pastures and forests management plans in support of long-term sustainability could affect the land use rights and may limit access of local communities, including the rural poor and women, to natural resources.

**SES 4.** The project-supported water/pastures/forests management plans once implemented, may have a negative impact on the use of natural resources and/or the critical biodiversity habitats and species.

**SES 5.** The expected impacts resulting from the project supported LDN compatible SLM measures and biodiversity conservation activities could be sensitive to changing climate conditions in the future.

**SES 6.** While developing measures for assisted forest regeneration and improved forest ecosystem management it is potentially possible that solutions may go wrong and impact species or ecosystems unintentionally.

**SES 7.** Supported local small businesses could involve third parties' subcontractors, that may inadvertently fail to comply with international labor standards including those related to child labor and/or may inadvertently fail to provide for occupational health and safety standards.

**SES 8.** The project may inadvertently contribute to potential perpetuation of discriminations against women. There are lingering disparities between men and women, particularly in rural areas and in the patriarchal cultures of some of the ethnic minority communities, which could be inadvertently replicated.

**SES 9.** The improved PAs capacities for patrolling, stricter application of environmental regulation (due to improved zoning under the new Management Plan) may impinge on the livelihoods of the nearby communities in the project area.

**SES 10.** The project may potentially resort to collaborations with local police and gendarmerie that may risk facilitating potential altercations with local communities. Improved enforcement/anti-poaching activities in protected areas might have an effect on the local communities and traditional subsistence activities, and/or create conflict.

**SES 11.** The project supported demonstration activities may inadvertently be implemented at/in the proximity of significant cultural and historical significance sites and/or may fail to properly consider procedures for chance finds of valuable cultural heritage sites.

**SES 12.** Project activities involving local/field interventions and close engagement with local communities may inadvertently contribute to the spread of COVID-19.

**SES 13.** Small scale construction site associated with the monitoring /observation towers in Sevan National Park and the supported small scale hydrotechnical repairs of the irrigation infrastructure at farm level around KBAs/IBAs, may have negative impact on critical habitats and species.

**215.** Based on the significance of these individual risks, the project has been allocated an overall SESP risk categorization rating of Moderate. Moderate Risk: is defined by UNDP's SES<sup>42</sup> as "Projects that include activities with potential adverse social and environmental risks and impacts that are limited in scale, can be identified with a reasonable degree of certainty, and can be addressed through application of standard best practice, mitigation measures and stakeholder engagement during Project implementation". An Environment and Social Management Framework (ESMF) has been developed on the basis of the risk screening during SESP to specify the processes that will be undertaken by the project for the additional assessments of potential impacts and identification and development of appropriate risk management measures, in line with UNDP's Social and Environmental Standards (SES). The project will work closely with all stakeholders throughout the project to ensure that potential risks related to the management of protected areas are minimized and mitigated. The project will also ensure that all legal policies and procedures in Armenia related to the sustainable management of land resources, biodiversity conservation, and land restoration are respected and followed, as well as international norms relating to the management of protected areas.

**216.** Risks related to impacts from the COVID-19 pandemic have been monitored during the PPG phase, and no major risks to the proposed project strategy and activities were identified. Upon inception, the project will develop procedures and safeguards to prevent any activity that may lead to potential spread of COVID-19. These

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<sup>42</sup> UNDP SES, page 47.

can include use of remote methods, when possible, protective equipment, maintaining social distancing, and other measures recommended by WHO and national authorities. These safeguards will be conveyed to all partners, third parties and contractors. The project will set up a Grievance Redress Mechanism (Annex 8 Stakeholder Engagement Plan) in order to allow those that might have a complaint and/or grievance to be able to communicate their concerns and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.

Stakeholder engagement and south-south cooperation:

**217.** The project’s design incorporates several features to ensure ongoing and effective stakeholders’ participation in the project’s implementation. UNDP is committed to ensuring meaningful, effective, and informed participation of stakeholders in the formulation and implementation of UNDP Programmes and Projects. Principally UNDP requires that its projects are designed with meaningful and effective participation of all stakeholders. This foundation for sustainable development assures that local peoples and other stakeholders play a key role in advancing achievement of the sustainable development goals (SDGs). UNDP’s commitment to stakeholder engagement arises from internal policies, procedures, and strategy documents as well as key international human rights instruments, principles and numerous decisions of international bodies, particularly as they relate to the protection of citizens’ rights related to freedom of expression and participation. Beyond regular consultations, the project’s Stakeholder Engagement Plan (Annex 8) Gender Action Plan (Annex 10) and KM Plan (Annex 22) provide the basis for the establishment of effective communication channels and the building of working relationships necessary for successful project implementation, seeking to define a technically and culturally appropriate approach to consultation and disclosure. These plans ensure that all key stakeholders are fully familiar with the components of this project and that they remain committed to and supportive of the related activities in the project.

**218.** The project is applying multiple strategies to ensure stakeholders engagement. First and foremost, the project will be launched by a Project Inception multi-stakeholder workshop which presents another opportunity to reinforce the partnerships agreed at PPG stage and present the most updated information on the project and the project work plan. Second, the Project Steering Committee (Project Board) will be constituted to ensure broad representation of all key interests throughout the project’s implementation involving UNDP’s long-standing partners such as the Ministry of Environment, Ministry of Economy, Ministry of Territorial Administration, Academy of Science. The project team will further establish and maintain the project partnerships. To secure their participation the stakeholders will be contacted and engaged with, using different strategies and methods that best suit their contributions and interests in the engagement program. Learning opportunities and technology transfer from peer countries will be further explored during project implementation. To present opportunities for replication in other countries, the project will share knowledge and case studies through the available platforms (WWF; FAO; GIZ and WB supported networks) and GEO LDN network for testing and replication of innovative digital solutions such as the UNCCD endorsed LUP4LDN to support national, regional, local authorities with LDN compatible land use planning and the progress towards Armenia’s National LDN targets. In addition, South-South cooperation opportunities and technology transfer from peer countries will be further explored during project implementation. An exchange of experience on LDN targets will be facilitated by the project through the organization of a three-day regional workshop (Act. 1.1.1), with the participation of UNDP GEF and UNCCD experts, to discuss best practices in establishing national and subnational level LDN targets and present international good practices in achieving land degradation neutrality through LDN compatible land use planning and SLM measures at national and subnational levels.

**219.**The key national and regional stakeholders are reflected in the table below:

Institution	Description/Role and engagement in the project
Ministry of Environment (MoE)	The Ministry of Environment is responsible for environmental protection and rational use of natural resources, prevention or reduction of negative impact on air, waters, soil, flora and fauna, protected areas and forests, wetlands.

	<p>The MoE will play a leading role in the Intersectoral Stakeholder Coordination Committee for LDN implementation in Lake Sevan (Component 1; Output 1.1.3), organization of Innovation Challenge for identification of biodiversity alternative financing sources, organization of awareness and training activities.</p> <p><b>MoE is the Implementing Partner</b> for this project and a key partner in promoting/advocating for formal approval of policy measures aiming at mainstreaming biodiversity into spatial and land use planning and improvement of Sevan National Park's management.</p>
WWF Armenia	<p>Operational since 2002, WWF is implementing projects focused on development and strengthening Ecological network of Armenia, conservation and restoration of threatened species, mitigation and adaptation of climate change impact on forest ecosystems, introduction of economic mechanisms for alternative livelihood for local communities in order to promote sustainable use of natural resources.</p> <p>The WWF Armenia was selected by the Ministry of Environment (MoE), in consultation with UNDP CO, based on the following criteria: a) long-lasting experience with Protected Areas and biodiversity management; b) experience with wildlife population assessments and establishment of migration friendly corridors supported by the local communities; c) experience with the implementation of environmental incentives for biodiversity friendly agricultural practices around Key Biodiversity Areas (KBAs); d) successful record of implementing international donor funded projects. From this perspective, the WWF Armenia's comparative advantage and internal capacities were acknowledged since the PIF stage and validated through HACT and PCAT assessments. Upon the project inception, the MoE in its capacity as Implementing Partner (IP) of this project through its affiliated EPIU, will enter into an agreement with WWF Armenia, for the realization of the Component 2 and Output 3.1.4, based on a final validation and budget fine-tuning that will be further agreed between parties during the inception period.</p>
Ministry of Economy	<p>The Ministry of Economy is mandated with the development, implementation, coordination, and assessment of the results of economic policy, implementation of unified agrarian policy of the Government, technical and technological equipment of agriculture sector and introduction of innovative solutions, promotion of organic agriculture, development of agricultural cooperation. The Ministry of Economy is a key project partner in implementation of LDN and SLM measures.</p>
Ministry of Territorial Administration and Infrastructure of the Republic of Armenia	<p>Mandated with the increasing of performance efficiency of regional administrations and local self-governance bodies, development of recommendations on introduction of waste removal and sanitary cleanup system in compliance with international norms, development and implementation of state policy in energy and transport sectors. The Ministry is a key partner in implementation of LDN guided land use planning, review and approval of the plans.</p>
Ministry of Emergency Situations (Rescue Service)	<p>The Ministry coordinates its emergency services according to the law and serves to evacuate citizens in the context of emergency situations and during natural disasters. The project will organize joint trainings for the PA staff and some of the local communities' volunteer squads, on wildfire fighting in forest areas in Gegharkunik and Vayots Dzor regions. The fire-fighting trainings will be organized jointly with the Ministry of Emergency Situation's experts from the Fire and Rescue Squad.</p>

The Water Committee	This is a public agency under the Ministry of Territorial Administration and Infrastructure, which develops and implements the policy of the government regarding the management and use of state-owned water management, and it will participate in the inter-sectoral coordination mechanism at Lake Sevan Basin landscape level, other working groups related to the development of integrated monitoring database in the Lake Sevan National Park and trainings.
Urban Development State Committee	Mandated with the development of “green urban development” principles, ensuring harmonic development of natural and cultural landscapes. The Urban Development Committee will participate in the LDN and spatial and land use planning meetings and working groups as well as training and awareness sessions.
State Committee of Real Estate Cadaster	Mandated with the land use data management, development of land policy, principles of management of land resources, development and implementation of geodesy and mapping project. The Cadaster Committee is a key partner in the implementation of LUP4LDN and LDN guided land use planning.
Statistical Committee of the Republic of Armenia	Mandated with the development, production and dissemination of official statistics according to the statistical programs. The Statistical Committee will be involved in Land use planning, socio economic and biodiversity data collection and analysis.
Environmental Protection and Mining Inspection Body of the Republic of Armenia	Mandated to ensure compliance with safety and legislative requirements related to nature protection and mining. Beneficiaries of training and awareness sessions.
Gegharkunik and Vayots Dzor Regional Administrations	Mandated with the implementation of territorial policy of the Government, coordination of activities of territorial units of executive institutions of the country. The regional authorities are key partners in LDN target setting, approval and implementation and monitoring. Beneficiaries of training and awareness sessions.
Committee of Forest of the Ministry of Environment of the Republic of Armenia (Chambarak and Vayots Dzor branches of Hayantar SNCO)	Mandated to ensure sustainable management of state forests, including protection, reforestation, afforestation and efficient use. The local branches of Hayantar SNCO are key partners in the development and implementation of sustainable forest management plans and restoration of forest ecosystems. Beneficiaries of training and awareness.
«Hydrometeorology and Monitoring Center» State Non-Commercial Organization	Mandated with the collection, analysis and protection of environmental and hydrometeorological data. The Center will participate in the project’s activities, climate change assessments and working groups, trainings.
“Sevan National Park” State Non-Commercial Organization	Mandated to ensure the normal process of development of aquatic and terrestrial ecosystems, protection of natural and historical monuments of Lake Sevan basin. The Park administration is a key partner for the implementation of the activities related to biodiversity in and around PA and community outreach. Beneficiary of training and awareness sessions.
Foundation for Restoration of Sevan Trout Stock and	Mandated with the restoration of trout stock in Lake Sevan, establishing and development of Sevan trout production and realization value chains and related branches, solving of Lake Sevan problems, development of production and processing

Development for Aquaculture	<p>of aquaculture in Armenia, development of knowledge-based and innovative technologies.</p> <p>The Foundation will support data collection and analysis on ichthyofauna of Lake Sevan and analysis of threats and impact and will support capacity building on sustainable fishing/aquaculture.</p>
Caucasus Nature Fund (CNF)	<p>CNF is a conservation trust fund created to safeguard the Caucasus ecoregion- one of the global biodiversity hotspots. It provides matching grants and technical assistance to protected areas in Armenia, Georgia, and Azerbaijan, building capacities to sustain natural parks for future generations beneficiaries of trainings and awareness activities.</p>
Local Self-Governance Bodies	<p>These local authorities are in charge with monitoring the implementation of the environmental regulations, including promotion of environmental education, promotion of tourism, implementation of disaster risk reduction measures, waste removal and sanitary clean-up in communities. They are key partners in the development and implementation of pastures management plans, forest management plans, and agroforestry measures. Beneficiaries of training and awareness activities.</p>
Local natural resource users groups	<ul style="list-style-type: none"> <li>• National Union of Farmers- regional branches</li> <li>• Gegharkunik Water Users Associations (Ghegarkuni region)</li> <li>• “Yeghegnadzor” Water Users’ Association (Vayots Dzor)</li> <li>• Project beneficiaries.</li> </ul>
Private sector	<p>The project will work with the representatives of tourism/hospitality industry in Lake Sevan basin. The project will also focus on small livestock entrepreneurs and local agriculture producers, and other local small tourism entrepreneurs in targeted villages/municipalities. The project will work with financial institutions to encourage/promote green lending to support responsible and sustainable agriculture and tourism business models.</p> <p>Project beneficiaries.</p>
Financial Institutions	<p>The project will work with the representatives of financial institutions (EBRD; ACBA Bank; FinBank; Inecobank) with portfolios in agriculture sector and tourism sector in order to ascertain the feasibility of piloting an agri-environmental payment scheme and explore operationalization options of such a mechanism for sustainable pasture management and financing biodiversity friendly agriculture practices.</p> <p>Beneficiaries of training and awareness activities.</p>
Center for Ecological-Noosphere Studies, National Academy of Sciences, RA	<p>The Center is conducting various assessments: assessment of ecological status of territories, development of scientific and methodological fundamentals of risk analysis, optimization of natural resource management processes, solution of problems in the area of human ecology. It will be a key partner in promoting LDN guided land use planning, mainstreaming of biodiversity spatial elements into land use planning, roll-out of the LUP4LDN software for land use planning, setting up integrated monitoring data base at Lake Sevan National Park, monitoring of key species, training and data analysis.</p>
Institute of Botany, National Academy of Sciences, RA	<p>The Institute is in charge with inventories of flora, vegetation and plant resources of Armenia, development of principles for increasing the efficiency of main forest systems, importing and adaptation of vegetation and plant resources, study of dynamics of changes of vegetation of Armenia. The Institute will be a key partner in the assessments of palearctic grassland areas and management recommendations, as well as knowledge management, knowledge sharing, targeted research.</p>

Scientific Center of Zoology and Hydroecology, National Academy of Sciences, RA	Studying of hydro- and terrestrial ecosystems of Armenia, biodiversity, taxonomy, morphology, ecology, ethology, evolution, genetics, zoogeography of invertebrate, vertebrate animals and parasitic fauna of animals.  Assessment of bioresources, development of their conservation methods, restoration and sustainable use. The Institute will participate into species survey, management recommendations, as well as knowledge management, knowledge sharing, targeted research.
Armenian National Agrarian University	The University is in charge of the preparation of agrotechnology specialists capable of developing the food and agriculture system in the country with the help of their professional skills and through cooperation with the sector's stakeholders. The University will participate in surveys, analysis of biodiversity and land degradation assessments.
Gavar State University	Mandated with the provision of higher education, including in biology, nature protection and use, mapping, and cadaster. The University will participate in surveys, analysis of biodiversity and land degradation assessments.
Media	Key partners of the organization of awareness raising dissemination of information on project activities.
NGOs	Participation in consultations, training and capacity building activities, development of local knowledge, implementation of project-related activities.
GIZ Armenia	Operational since 2002 in Armenia, the GIZ initiatives in Armenia are part of a strategic approach to support regional cooperation under the Caucasus Initiative in several areas: sustainable economic development, democracy and environmental governance.
Other International Organizations	Coordination and support to development of national policies related to conservation and sustainable management of land resources and high value ecosystems in Lake Sevan landscape.

#### Gender equality and Women's Empowerment:

**220.** Gender Analysis and Gender Action Plan (please see Annex 10) were developed to guide gender mainstreaming during the project implementation and ensure that the project interventions targeting local communities will promote equal benefit sharing and women participation. Specific gender-based indicators will be used for gender monitoring and a gender specialist will be part of the Project Management Unit (PMU) to facilitate improvements to gender equality and women empowerment.

**221.** Armenia ranks 89<sup>th</sup> of 153 countries in the World Economic Forum (WEF)'s Global Gender Gap Report, illustrating important gains in terms of gender equality in recent years, particularly in the area of education. However, challenges remain, and gender inequalities are still socially accepted or tolerated, especially in rural areas where gender inequalities are more entrenched e.g., the share of women engaged in informal employment in agriculture is 82% compared to 60% of male informal workers and furthermore, and there are also uneven opportunities for men and women to engage in rural tourism activities. Women in rural areas are extensively involved in work related to the production of agricultural goods and services for the family and household use. This work includes crop production and breeding of livestock in the households' plots and family farms; production of household goods; production of food for consumption by the family and household members and for sale; fetching water and gathering firewood; housework; looking after children and the elderly and sick members of the families. Rural women working informally on family farms or businesses do not receive any compensation as defined by the Labor Code because they are considered to be either self-employed or economically inactive. There is a strong vertical and horizontal segregation in the labor market, which results in significant gender pay gap with women' average wages representing 66% of men's average wages. One of the



primary contributors to gender inequality is the continuing disparity in economic entrepreneurship among women and men, access to trainings and knowledge products and difficulties in access to loans due to limited property for collateral<sup>43</sup>.

**222.** The gender analysis has highlighted that women are underrepresented among decision makers at national and local levels. Women's access to land and natural resources is hindered by stereotypes and by their lack of knowledge about their rights. The gender action plan (GAP) is based on the gender analysis and identifies and supports opportunities to include women in the planning and implementation activities, especially in support of increased participation and leadership in decision-making processes relating to the natural resources and providing opportunities to ensure that economic benefits are shared equitably between men and women.

**223.** The project will promote an environment that will help overcome gender biases, promote women's empowerment and foster inclusion and equal opportunities. GAP ensures the measures for gender considerations are fully mainstreamed into project implementation and the project will: (i) advocate for women to be recognized as key landscape stakeholders; (ii) include women and youth from the project targeted areas in the process of drafting and implementation of the land use and water management plans; as members of the committees and working groups and as trainees and trainers; (iii) enable full and effective consultation and participation of women and men at all stages of pastures and forests management planning and implementation and the land restoration activities. (iv) ensure meaningful participation in the stakeholders' consultation process; (v) ensure project grant criteria under Output 3.1.4 will allow for equitable distribution of benefits between men and women (vi) design awareness campaigns to explicitly target women and youth and ensure that the content of information will be tailored to the differentiated ways that men and women have access to and use the natural resources.

**224.** Under Component 3 the project will support public advocacy for women's rights, including gender sensitive measures to be included in the pasture management strategies, forest management plans, agro-forestry measures and sustainable water management plans for irrigated areas (Output 3.1.2); the project's efforts will be directed towards strengthening local women entrepreneurship, and enabling training of women in pasture management and sustainable agricultural practices and business development (3.1.1). The identification of gender sensitive climate resilient pasture management strategies will be linked with the national adaptation planning activities which are currently under implementation within the framework of the regional EU funded *EU4Climate Programme*, implemented by UNDP. Gender responsive approaches in the LDN compatible SLM measures will be identified and implemented throughout the project. Dedicated support to women farmers, women entrepreneurs and support to youth participation and trainings will be embedded in the project strategy. The project will also gather gender-disaggregated data for evaluation purposes and use gender sensitive indicators (particularly around beneficiaries) to facilitate planning, implementation and monitoring. In terms of ensuring gender mainstreaming, several practical steps will be undertaken. The Gender Action Plan will include distinct gender performance indicators and actions and timeline.

#### Innovativeness, Sustainability and Potential for Scaling Up:

**225.** The project's innovative strategy is incremental in that it leverages an integrated landscape approach and the Key Biodiversity Areas (KBAs/IBAs) within the wider landscape as the focal points for integrated sustainable land use management with biodiversity benefits from mainstreaming. The project includes innovative measures implemented together with local natural resources users, expected to bring about change and support the shift towards a more sustainable use of natural resources:

- *Integrated LDN compliant integrated land use management:* The project is turning the LDN concept into practice in Lake Sevan Basin and will generate innovative approaches to multi-sector land use planning based on remote sensing data in mapping and geospatial analysis, testing and implementation of LDN compatible land use planning in Geghargunik and Vayots Dzor provinces.
- The UNCCD endorsed innovative online tool LUP4LDN will be piloted in Vardenis, Martuni, Shogakat, Yeghegis, Vayk and Jermuk communities in Sevan Basin landscape. The resulting "Neutrality Maps" from using such an innovative tool will allow visualisation and quantification of gains (where interventions are planned to reverse past land degradation), stable areas (where land based natural capital can be maintained through good management) and anticipated losses (where realistically it is

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<sup>43</sup> Gender, Agriculture and Rural Development in Armenia, FAO, 2017

determined that land degradation may not be avoidable). The LUP4LDN will be used for the development of Integrated Spatial and Land Use Plans in these six targeted communities. Once formally approved, these plans become mandatory and will be implemented by the local self-government in communities and villages (LSG). The project will develop Guidelines and Manuals for the development of LUP4LDN assisted ISLUPs which are expected to be formally approved by the national and regional authorities and replicated to other regions.

- Innovative financing of biodiversity friendly agriculture in Lake Sevan Basin landscape through the KPI based Agri-Environmental Payment Scheme: This represents a revolutionary step in Armenia's agriculture sector and will be initially applied within the projects' partnership with 10 Pasture Users Associations. This KPI based Scheme is expected to be ultimately embedded within a national state programme.
- Restored pastures, cropland and assisted regeneration of high value forest ecosystems: The innovative element will consist in the application of diverse irrigated land, pasture and forests management measures aligned with the LDN "prevent-reduce-restore" hierarchy, based on the LDN baseline assessments and active promotion of biodiversity-friendly production practices and ecological corridors and buffer zones around PAs and KBAs/IBA.
- Integrated water management: The project's integrated approach is aligned with IWRM and LDN concepts and will provide concrete demonstration of integrated water-land sustainable use on irrigated farmland areas and LDN compliant soil enriching farming measures in the targeted local communities; it will support the use of innovative irrigation technologies (such as drip irrigation). The proposed project will coordinate with other donor funded initiatives implementing sustainable Lake Sevan catchment management by building upon and supporting different measures under Sevan River Basin Management Plan and its Programme of Measures (PoM), and Lake Sevan National Park Management Plan.
- UNDP supported Innovation Challenge will be organized together with Impact Hub Social Innovation Development Foundation and will promote innovative business solutions, innovative technologies, policies, regulations and financial instruments aiming at identifying alternative financing solutions for Lake Sevan National Park, and other biodiversity hotspots.
- Innovative biodiversity monitoring involving the project-supported partnerships of Lake Sevan National Park with the local communities "green patrols", guided monitoring activities with schools and academia representatives that will support a better involvement of local communities in the PAs biodiversity monitoring.

**226. Sustainability:** Institutional sustainability will be ensured through strengthened inter-sectoral coordination through the *Inter-Sectoral Coordination Committee* (Output 1.1.3) at Lake Sevan Basin landscape level. The project will closely coordinate with the EU4Sevan Project and will support the strengthening of capacity of the Inter Sectorial Committee that will be set up (re-activated) by EU4Sevan Project. This Committee's main role will be to advise and support coordination of sectoral policies in Lake Sevan Basin, and with the GEF project's support the members/institutions participating in this Committee will be better capacitated to ensure integration of LDN implementation with the current and future commitments on biodiversity, land degradation and climate change, and will promote UNCCD's LDN concept, UNCBD and UNFCCC agenda as well as coordination with EU WFD and IWRM principles in a synergic way. The participatory approaches employed by the proposed project will aim at multiple development dividends, empowered rural communities, conscientious and effective managers of natural resources, with increased capacities to manage their land, access financing and enhance their livelihoods. Socio-economic sustainability will be enhanced by improving livelihoods of local communities, through the restoration of land resources and improved pasture management and securing ecosystem services (Component 3). The project will work through local governance structures – including strengthening pasture users' group, cooperatives, women groups and farmers-to-farmers sharing of experiences, in order to improve communication, collaboration and cooperation between tenure holders, natural resource users and the relevant state, regional and local administrations. Environmental sustainability will be enhanced by LDN compatible land use planning (ISLUPs) in selected municipalities, guiding the implementation of concrete LDN compatible SLM measures resulting in improved land and biodiversity condition and supporting progress towards a decrease of diffuse water pollution sources coming from agriculture. The financial sustainability will be ensured through the innovative agri-environmental payments (Output 3.1.1) that will encourage biodiversity friendly practices in Lake Sevan productive landscape. The Agri-environmental payment scheme will be tested with a view of inserting agri-environmental payment in the governmental programmes financing sustainable pasture management. Moreover, by strengthening the

institutional capacities of the members of the Inter-sectorial Coordination Sevan Committee (Output 1.1.3) and of the Sevan National Park (Output 2.1.1.) and by leveraging multi-sectoral stakeholders' engagement at the level of the Lake Sevan Basin, the project will create an enabling environment that reduces investment risks, creates the conditions for reduced dependency on grant-funded initiatives by attracting private finance. The project concept aligns with the STAP guidance (GEF/STAP/C.56/Inf.04) on achieving sustainable outcomes, including the following approaches: (i) Designing multi-stakeholder processes to engage key stakeholders, build stakeholder trust and motivation, and incentivize core actors for sustainable Lake Sevan Basin landscape management (ii) Outlining a theory of change that recognizes the need for integrated and participatory approaches and emphasizes diversity and adaptive learning. The project's training materials will be embedded in university courses. In this regard, the project will work with Gavar University to update two courses of the existing curricula capturing the project-supported experience, manuals and guidelines.

**227. Scaling up:** The project is innovative and scalable in its design, and will employ mainstreaming, replication and linking of results with on-going national initiatives in order to achieve greater impact. Its objective is to identify LDN targets and support their implementation in selected municipalities and provide replicable models that could be immediately scaled up to the entire Lake Sevan Basin. The guidelines and manuals capturing the LDN compliant land use management, informed by ELD concept and biodiversity considerations as well as SLM generated experience will be institutionalized and therefore could be replicated in other municipalities and/or regions. The new innovative UNCCD endorsed LUP4LDN software tool will be piloted and demonstrated at the level of targeted municipalities providing knowledge and expertise for replication and sustainability of interventions. The mechanism of the project-supported KPI based Agri payment Scheme (Output 3.1.1) is expected become institutionalized (adopted/embedded into a national state programme), and to incentivize farmers away from destructive agriculture practices and support the biodiversity-sensitive pasture and grasslands management and use of remote pastures. Ample awareness raising and capacity building events is expected to result in a wider up taking of LDN/SLM and biodiversity friendly practices. The project will closely coordinate with other ongoing interventions in particular with GEF/FAO *“Implementation of Armenia’s LDN commitments through sustainable land management and restoration of degraded landscape”* linking the proposed LDN approaches in Lake Sevan basin with the National LDN platform and reporting mechanism, in view of scaling up demonstrated LDN implementation at sub-national levels. The LDN Regional Workshop envisaged under Output 1.1.1. and supported by the project will bring together countries in the regional and countries with similar climatic conditions to share lessons learned and scale up good practices in the setting up targets at sub-national level and LDN reporting and monitoring LDN implementation progress.

## V. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s):

Goal 1 – End poverty in all its forms everywhere; Goal 5 – Achieve gender equality and empower all women and girls; Goal 8 – Decent work and economic growth; and Goal 15 – Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.

This project will contribute to the following country outcome (UNDAF/CPD, RPD, GPD):

UN Sustainable Development Cooperation Framework 2021-2025; COOPERATION FRAMEWORK OUTCOME INVOLVING UNDP #2: UNSDCF Outcome 5: Ecosystems are managed sustainably, and people benefit from participatory and resilient development and climate-smart solutions NATIONAL PRIORITY OR GOAL: 2019-2023 Government Programme and Action Plan, Section 5. Armenia Transformation Strategy 2050.

COOPERATION FRAMEWORK OUTCOME INVOLVING UNDP #2: UNSDCF Outcome 5: Ecosystems are managed sustainably, and people benefit from participatory and resilient development and climate-smart solutions

	Objective and Outcome Indicators	Baseline <sup>44</sup>	Mid-term Target <sup>45</sup>	End of Project Target
Project Objective	To promote land degradation neutrality, restore and improve the use of land and water resources in Armenia's Lake Sevan Basin to enhance the sustainability and resilience of livelihoods, biodiversity and globally significant ecosystems.			
To promote land degradation neutrality, restore and improve the use of land and water resources in Armenia's Lake Sevan Basin to enhance the sustainability and resilience of livelihoods, biodiversity and globally significant ecosystems	<p><b>Indicator 1. (GEF 7 Core Indicator 11)</b> Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment:</p> <p># of <u>public sector employees</u> with improved capacity for LDN, SLM, integrated land use</p> <p># of <u>local resource users and agricultural producers</u> with improved awareness and technical knowledge on LDN, SLM and sustainable water use, alternative livelihoods, benefiting from the project activities</p> <p># of <u>Micro-Grant scheme beneficiaries</u></p> <p># of <u>PAs staff/environment officials</u> with enhanced individual capacity in</p>	N/A (zero beneficiaries)	<p>Total: 3,500 (1,750 women and 1,750 men)</p> <p><u>Public sector employee: 100 public sector staff</u> at national and local level of which at least 50% women (50 women and 50 men)</p> <p><u>Local resource users and agricultural producers: Total 3,000</u> (1,500 women and 1,500 men)</p> <p><u>Micro-grant scheme beneficiaries:</u> N/A (too early for accrued benefits)</p> <p><u>PA staff/environment officials:</u></p>	<p>Total: 65,800</p> <p><u>Public sector employee: 200 public sector staff</u> at national and local level of which at least 50% women (100 women; 100 men)</p> <p><u>Local resource users and agricultural producers: Total 6,500</u> (3,250 women; 3,250 men)</p> <p><u>Micro-Grant scheme beneficiaries</u> <b>Total: 200 grantees</b> (100 women; 100 men) of which 30% (60 grantees) war migrants and extremely vulnerable households.</p> <p><u>PA staff/environment officials</u> <b>100 PA staff</b> with enhanced capacity (50 women and 50 men)</p>

<sup>44</sup> Baseline, mid-term and end of project target levels must be expressed in the same neutral unit of analysis as the corresponding indicator. Baseline is the current/original status or condition and needs to be quantified. The baseline can be zero when appropriate given the project has not started. The baseline must be established before the project document is submitted to the GEF for final approval. The baseline values will be used to measure the success of the project through implementation monitoring and evaluation.

<sup>45</sup> Target is the change in the baseline value that will be achieved by the mid-term review and then again by the terminal evaluation.

	biodiversity conservation and sustainable management, legal enforcement and patrolling.  #of beneficiaries of SLM measures		<b>50 PA staff</b> with enhanced capacity (25 women and 25 men)  N/A	<b>58,800</b> beneficiaries of the investments in the irrigation infrastructure
	<b>Indicator 2. (GEF 7 Core Indicator 1.2)</b> Terrestrial protected areas created or under improved management for conservation and sustainable use (ha)	0 ha	Necessary species and habitat mapping, flora and fauna monitoring and GIS analysis for the preparatory work in an advanced stage  Training Needs Assessment (TNA) finalized  Midterm progress assessed- METT scorecards	147,456 ha
	<b>Indicator 3. (GEF 7 Core Indicator 4)</b> Area of landscapes under improved practices (hectares, excluding PAs) (sum of <b>Indicator 12; Indicator 13 and Indicator 15 below</b> )	0 ha	Baseline methodologies agreed. Expert biodiversity and land resources mapping necessary for the preparatory work completed; GIS analysis completed.	165,800 ha
	<b>Indicator 4. (GEF 7 Core Indicator 6.1)</b> GHG emissions mitigated (tCO <sub>2</sub> -eq)	N/A (project activities not under implementation)	No change (project outcomes and impacts not yet at stage where GHGs avoided/sequestered)	1,403,851
<b>Project Component 1</b>	<b>Component 1: Promoting Land Degradation Neutrality in Lake Sevan Basin landscape to ensure productivity and ecological landscape resilience</b>			
<b>Project Outcome<sup>46</sup> 1.1</b> Land Degradation Neutrality in Gegharkunik and Vayots Dzor provinces promoted through integrated multi-sectoral landscape approaches	<b>Indicator 5.</b> Jurisdictions in Sevan Basin with LDN regional voluntary targets, action plans and monitoring systems in place	LDN baseline for Gegharkunik and Vayots Dzor assessed at PPG stage	LDN baseline and Land degradation trends validated for regional LDN target setting in the targeted regions/marzes	<b>2 (LDN regional targets</b> set in Gegharkunik and Vayots Dzor regions/marzes)
	<b>Indicator 6.</b> Status of LDN compatible integrated spatial and land use planning in Sevan Basin landscape	No LDN compatible integrated spatial and land use planning	Assessments and methodology developed for: (i) -LDN compliant land degradation assessments (ii) LDN compliant mapping of degraded lands in targeted provinces, (iii) Identification of priority land and forest restoration zones according to LDN principle and -Identification of spatial elements required by species and habitats of the KBAs/IBAs	<b>6 LDN-compatible Integrated Spatial and Land use plans (ISLUPs)</b> completed, adopted and under implementation for the targeted districts in Gegharkunik and Vayots Dzor provinces

<sup>46</sup>Outcomes are medium term results that the project makes a contribution towards, and that are designed to help achieve the longer-term objective. Achievement of outcomes will be influenced both by project outputs and additional factors that may be outside the direct control of the project.

			-Economics of Land Degradation (ELD) analysis and LDN principle (prevent-reduce-restore) and LDN targets -Inter-sectorial coordination mechanism (working group) in Lake Sevan set up and operational	
<b>Outputs to achieve Outcome 1</b>	<p><b>Output 1.1.1</b> Land Degradation trends assessed, LDN targets set-up and monitoring system developed for Ghegarkunik (534,900 ha) and Vayots Dzor (230,800 ha) marzes/regions, providing a framework to avoid, reduce and restore degraded land through integrated landscape planning</p> <p><b>Output 1.1.2</b> LDN compatible Integrated Spatial and Land-use Plans (ISLUPs) informed by climate change vulnerability, Economics of Land Degradation (ELD) and biodiversity values in prioritized communities</p> <p><b>Output 1.1.3</b> Inter-sectoral coordination strengthened to oversee regional LDN target setting and implementation, integrated land use planning and strengthened environmental governance in Lake Sevan Basin landscape</p> <p><b>Output 1.1.4</b> Capacity building programme for regional and local authorities, natural resources users on LDN, SLM and methodologies for land use planning informed by ELD concept</p>			
<b>Project Component 2</b>	<b>Component 2: Securing Biodiversity and critical habitats for Biodiversity Services as a baseline for non-deterioration of ecosystem services within Lake Sevan Basin landscape</b>			
<b>Outcome 2.1</b> Secured biodiversity status in <b>Sevan National Park</b> (147,456 ha) by strengthened PA capacity to better address the key threats to globally significant species and habitats within the main PA/KBA anchoring Lake Sevan landscape.	<b>Indicator 7.</b> Change in the capacity of the management of key Protected Areas to implement effective biodiversity conservation and sustainable management measures	Sevan National Park METT Score: 37	Sevan National Park METT Score: 39	Sevan National Park <b>METT Score:44</b>
	<b>Indicator 8.</b> Stable or positive changes in the population of globally significant biodiversity at Sevan National Park  Bezoar goat ( <i>Capra aegagrus aegagrus</i> ) European otter ( <i>Lutra lutra</i> ) NT Common pochard ( <i>Aythya ferina</i> ) VU; European turtledove ( <i>Streptopelia turtur</i> ) VU; Great cormorant ( <i>Phalacrocorax carbo</i> ); Steppe viper ( <i>Vipera eriwanensi</i> ) VU	Baseline: as indicated in the METT scorecards	Midterm target changes: As indicated in the METT scorecards	<b>End project target changes:</b> As indicated in the METT scorecards
	<b>Indicator 9.</b> # of Public-Private Partnerships promoting Lake Sevan biodiversity values	PPP potential assessed	PPP potential validated Innovation Challenge organized	<b>2 Public Private Partnerships</b> promoting Lake Sevan biodiversity values <b>Innovative PA financing mechanism identified and implemented</b>

<p><b>Outputs to achieve Outcome 2.1</b></p>	<p><b>Output 2.1.1</b> Improved management effectiveness of Sevan National Park through PA regime compliance and enforcement, strengthened PA infrastructure, climate change sensitive integrated monitoring data base, improved patrolling and enforcement capacity of environmental regulation, research and monitoring and species-focused conservation skills and capacities strengthened.</p> <p><b>Output 2.1.2</b> Business Plan and strengthened tourism infrastructure at Sevan National Park; Innovative financing mechanism of the Park’s biodiversity values; Public Private Partnerships for the valorization of Lake Sevan nature values.</p>			
<p><b>Outcome 2.2.</b> Biodiversity conservation assessments and proposed arrangements in Lake Sevan landscape in place for the biodiversity hot-spots outside the PA.</p>	<p><b>Indicator 10.</b> Number of comprehensive assessments with conservation measures targeting biodiversity hotspots outside PAs identified, justified for protection</p>	<p>Limited/no biodiversity conservation aspects mainstreamed in land use planning</p>	<p>Field studies and mapping of KBAs/IBAs, Wildlife Sanctuaries in Sevan Basin landscape completed</p> <p>Field samples of Palearctic grasslands conducted</p> <p>Mapping of Easter Lesser Caucasus Ecological Corridor conservation area completed (<i>jointly with WWF Armenia</i>)</p>	<p><b>3 Assessments</b></p> <ul style="list-style-type: none"> <li>• <b>Assessment of KBA/IBA, Wildlife Sanctuaries</b> status in prioritized areas of Lake Sevan Basin landscape completed</li> <li>• <b>Mapping of globally important species and wildlife habitats</b> in the Eastern Lesser Caucasus Corridor (in <i>Gegharkunik region</i>) completed and conservation measures and biodiversity spatial requirements identified</li> <li>• <b>Assessment of grasslands, including Palearctic grasslands’</b> biodiversity status in prioritized communities of Gegharkunik and Vayots Dzor regions</li> </ul>
	<p><b>Indicator 11.</b> Existence of Methodology for Biodiversity conservation considerations and spatial elements mainstreamed in land use planning</p>	<p>No such methodology exist</p>	<p>Draft Methodology developed for the <b>incorporation of biodiversity conservation requirements into spatial planning and management of land use developed</b>, with due consideration of:</p> <p>(i) key species and important habitats (KBAs/IBAs) and their spatial distribution/elements and</p> <p>(ii) concrete solutions for community-supported conservation of valuable biodiversity outside PAs and improved connectivity of the wildlife ecological corridors.</p> <p>(iii) climate change- induced modifications of the spatial requirements of key species and habitats.</p> <p>(iv) conservation of grasslands, particularly Palearctic grasslands biodiversity</p>	<p><b>Methodology</b> for mainstreaming biodiversity in land use planning and improving natural ecosystems connectivity for wildlife migration, formally approved and under implementation</p>
<p><b>Outputs to achieve Outcome 2.2</b></p>	<p><b>Output 2.2.1</b> Key Biodiversity Areas (KBAs) and other biodiversity hotspots in Lake Sevan Basin landscape, situated outside the PA, identified, mapped, conservation status assessed, and climate sensitive conservation measures mainstreamed into the Integrated Spatial and Land Use Plans/ISLUPs (used as input into Outputs 1.1.2, 3.1.1 and 3.1.3).</p>			
<p><b>Project component 3</b></p>	<p><b>Component 3: Promoting sustainable and biodiversity friendly economic development and incentives for local communities in Lake Sevan landscape</b></p>			

<b>Outcome 3</b> Biodiversity friendly and LDN compatible SLM practices promoted in Lake Sevan production landscape.	<b>Indicator 12.</b> (GEF Indicator 4.1) Area (ha) of sustainable pastureland regimes	0 ha	Pasture/grasslands inventories completed GIS analysis finalized Sustainable pasture management plans for 75,000 ha of pastures and grasslands developed	<b>150,000 ha of pastures and grasslands</b> under sustainable management with the support of Pasture Users Associations in the targeted areas
	<b>Indicator 13.</b> (GEF Indicator 4.3) Area (ha) of irrigated/arable land under sustainable water and land management plans	0 ha	Land degradation patterns and water use patterns analyzed GIS supported analysis finalized Drafting of the Sustainable management plans for the targeted arable land initiated	<b>10,000 ha</b>
	<b>Indicator 14.</b> (GEF Indicator 3.2) Area(ha) of degraded forest restored.	0 ha	Forest degradation patterns analyzed Forest management plans (Hayantar) assessed, and recommendations/updates developed (i.e., to include climate sensitive forest restoration measures) GIS supported analysis finalized Methodology for the forest restoration developed	<b>2,200 ha</b>
	<b>Indicator 15.</b> (GEF Indicator 4.3) Area (ha) of forest ecosystems under climate-change sensitive sustainable forest management plans	0 ha	Forest degradation patterns analyzed Existing Forest management plans (Hayantar) assessed Recommendations/updates developed (i.e., to include climate sensitive sustainable forest management measures to be mainstreamed in the existing plans) GIS supported analysis finalized	<b>5,800 ha</b>
	<b>Indicator 16.</b> Number of agreements with local communities, to ensure biodiversity conservation and safe wildlife migration within the Eastern Lesser Caucasus corridor.	6 Agreements facilitated by WWF Armenia with the support of the Eco-Corridor Fund for the Caucasus	Identification of the local communities completed Conservation measures identified and agreed with local communities Facilitation of conservation agreements in advanced stage	<b>5 Conservation Agreements</b>
	<b>Indicator 17.</b> Small farmers' (grantees) net income (differentiated by gender) from sustainable practices (livestock, hay, seeds, dried fruits, medicinal plants, handicrafts, eco-tourism)	Baseline to be determined in the first year of project implementation.	Net Income men: \$X + 10% Net income women: \$X + 10%	Net Income men: \$X + 20% Net income women: \$X + 20% Participating farmers show 20% increase based on year 1 estimate.



	resulted from biodiversity friendly agricultural practices in PA and KBAs/IBAs buffer and production zones, within the Eastern Lesser Caucasus corridor	Net Income men: \$ X Net income women: \$ X Net income of at least 80% of participating grantee (male/female) documented at project inception (year 1)	Participating farmers/households show at least 10% increase based on year 1 estimate.	
	<b>Indicator 18.</b> Existence of financial mechanism for sustainable pastures management to benefit biodiversity	No such mechanism exists	Agri-payment scheme's KPI identified and agreed with the official authorities at community level and Pasture Users Associations. Trainings of the Pastures Users Associations completed Agreements with the Pasture Users Associations signed	Key Performance Indicators (KPI) based Agri-Environmental Payment Scheme operational
<b>Outputs to achieve Outcome 3</b>	<p><b>Output 3.1.1</b> Sustainable pasture management plans at targeted village level, aligned with the LDN assessment and the Integrated Spatial and Land Use Plans (ISLUPs), including biodiversity measures for palearctic grasslands conservation; 10 Pasture Users Associations capacitated to apply biodiversity friendly SLM measures to achieve LDN and resilient livelihoods.</p> <p><b>Output 3.1.2</b> Climate sensitive and LDN compatible Integrated Water Management Plans in selected municipalities leading to soil improvement through innovative irrigation technologies and climate resilient crop farming aligned with LDN principles; strengthened capacity of WUAs to demonstrate sustainable crop farming and agroforestry measures.</p> <p><b>Output 3.1.3</b> Sustainable Forest Management Plans addressing forest degradation and ecological connectivity through sustainable forestry measures and assisted regeneration.</p> <p><b>Output 3.1.4</b> Investments in community-based biodiversity friendly sustainable use measures and support to small eco-tourism operators in the PA, KBAs buffer zones and corridors, aiming to provide alternative income to local communities.</p>			
<b>Project Component 4</b>	<b>Component 4: Knowledge management and Learning</b>			
<b>Outcome 4.1</b> Best practices and lessons are accessed and applied in other production landscapes and micro-catchments in the country and in the region	<b>Indicator 19.</b> Number of SLM capacity building events, project awareness raising events and targeted KM products on LD and BD issues in Lake Sevan Basin. Project knowledge products include, where feasible, an analysis of gender equity/empowerment in relation with the specific knowledge topic.	Limited awareness raising on climate sensitive sustainable and integrated biodiversity-land-water resources management in the Lake Sevan Basin	Training Needs Assessment completed. Training modules designed. Behavior change-supported Testing Phase designed (for the desired/selected change in farmers' behavior). Awareness raising and Communication Plan developed. 15 trainings implemented. 10 awareness events implemented.	<ul style="list-style-type: none"> <li>• <b>10 training workshops for the Pasture Users Associations</b> on SLM measures and climate resilient sustainable agricultural practices and rural entrepreneurship</li> <li>• <b>3 training workshops for the Water User Associations (WUAs)</b> on sustainable LDN compatible farming and climate smart irrigation</li> <li>• <b>6 Farmers Field Schools</b> in the targeted communities sharing lessons learned and good SLM practices</li> <li>• <b>6 Trainings</b> on Project/Proposal writing for local authorities and local natural resource users</li> <li>• <b>6 local training sessions on eco-tourism</b></li> <li>• <b>LDN Regional Workshop</b> to share experience, generated knowledge, challenges, and opportunities in LDN regional target setting.</li> </ul>

				<ul style="list-style-type: none"> <li>• <b>Functional network</b> of agriculture extension providers set up</li> <li>• <b>20 gender sensitive awareness raising</b> events</li> <li>• <b>20 Radio Talk Shows</b> for farmers with a segment for women farmers</li> <li>• <b>Available gender-sensitive LDN/SLM/biodiversity training/information materials</b> and country-specific knowledge shared on UNCCD/ WOCAT platform; FAO platform; CARMAC platform; Adaptation Fund project platform</li> <li>• <b>Project-video Documentary</b></li> <li>• <b>Project web site and social media</b> platforms</li> </ul>
	<p><b>Indicator 20.</b> Existence of guidance, methodologies and tools for LDN compatible biodiversity-sensitive spatial and land use planning in targeted municipalities, informed by LDN principles; Biodiversity considerations; ELD concept-facilitating upscaling and replication of generated project experience.</p>	Limited technical/analytical guidance, methodologies and behaviorally informed studies, for the institutions with mandate in land and biodiversity governance	Field assessments for LDN and integrated land use planning, land degradation assessments and Biodiversity assessments completed  Manuals and guidelines outline discussed and agreed with the national counterparts	<ul style="list-style-type: none"> <li>• <b>Manual</b> on LDN compatible and biodiversity friendly integrated spatial land use planning for climate resilient ecosystems and livelihoods</li> <li>• <b>Project Sustainability and Replication Strategy</b> presented and endorsed by project Board and Ministry of Environment</li> <li>• <b>Technical assessments</b> of biodiversity outside PAs and conservation measures for increasing ecosystems connectivity</li> <li>• <b>Recommendations for behaviorally informed public policies</b> for a wider uptake of biodiversity sensitive SLM measures and advance towards Land degradation Neutrality in Lake Sevan Basin</li> </ul>
<b>Outputs to achieve Outcome 4</b>	<p><b>Output 4.1.1</b> Increased knowledge and awareness among local communities and decision makers about LDN and key values of Lake Sevan Basin in connection with the use of water and biodiversity ecosystem services.</p> <p><b>Output 4.1.2</b> Experience, best practices and lessons learned about LDN, SLM, biodiversity and water management, captured, systematized and made available through various platforms for public and private stakeholders for use in other production landscapes and catchment areas in the country and in the region.</p>			
Project component 5	<b>Component 5: Monitoring and Evaluation</b>			
<b>Outcome 5.1</b>	<p><b>Indicator 21.</b> Functioning M&amp;E system and monitoring of GEBs and co-benefits established</p>	N/A	Midterm evaluation report M&E activities	<ul style="list-style-type: none"> <li>• <b>Reports</b> with monitored and evaluated project results (GEF midterm and final reports)</li> <li>• <b>Quarterly monitoring</b> activities (UNDP)</li> <li>• <b>GEB monitoring</b> criteria included in Agri-Environmental Payment Scheme and grants contracts.</li> </ul>
<b>Outputs to achieve Outcome 5</b>	<p><b>Output 5.1.1. Set of monitoring and evaluation activities</b> Set of monitoring and evaluation activities implemented. Monitoring and evaluative knowledge systematically integrated into project management and planning.</p>			

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## VI. MONITORING AND EVALUATION (M&E) PLAN

**228.** Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP \(including guidance on GEF project revisions\)](#) and [UNDP Evaluation Policy](#). **The UNDP Country Office is responsible for ensuring full compliance with all UNDP project M&E requirements including project monitoring, UNDP quality assurance requirements, quarterly risk management, and evaluation requirements.**

**229.** Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the [GEF Monitoring Policy](#) and the [GEF Evaluation Policy](#) and other [relevant GEF policies](#)<sup>47</sup>. The M&E plan and budget included below will guide the GEF-specific M&E activities to be undertaken by this project. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed – including during the Project Inception Workshop - and will be detailed in the Inception Report.

### Minimum project monitoring and reporting requirements as required by the GEF:

**230. Inception Workshop and Report:** A project inception workshop will be held within 2 months from the First disbursement date, with the aim to:

- a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
- b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
- c. Review the results framework and monitoring plan.
- d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
- e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework (where relevant) and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.
- f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
- g. Plan and schedule Project Board meetings and finalize the first-year annual work plan. Finalize the TOR of the Project Board.
- h. Formally launch the Project.

**231. GEF Project Implementation Report (PIR):** The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. UNDP will undertake quality assurance of the PIR before submission to the GEF. The PIR submitted to the GEF will be shared with the Project Board. UNDP will conduct a quality review of the PIR, and this quality review and feedback will be used to inform the preparation of the subsequent annual PIR.

**232. GEF and/or LDCF/SCCF Core Indicators:** The GEF and/or LDCF/SCCF Core indicators included as Annex 12 will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to MTR and TE. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/TE consultants prior to required evaluation missions, so these can be used for subsequent ground truthing. The methodologies to be used in data collection have been defined by the GEF and are available on the GEF [website](#).

**233. Independent Mid-term Review (MTR):** The terms of reference, the review process and the final MTR report will follow the standard UNDP templates and UNDP guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). The evaluation will be independent, impartial and rigorous. The evaluators that UNDP will hire to undertake the assignment will be independent from organizations that were

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<sup>47</sup> See [https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)

involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project under review. The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the evaluation process. Additional quality assurance support is available from the BPPS/ Environment Directorate. The final MTR report and MTR TOR will be publicly available in English and will be posted on the **UNDP ERC by April 15, 2026**. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report's completion.

**234. Terminal Evaluation (TE):** An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center](#). TE should be completed 3 months before the estimated operational closure date, set from the signature of the ProDoc and according to the duration of the project. Provisions should be taken to complete the TE in due time to avoid delay in project closure. Therefore, TE must start no later than 6 months to the expected date of completion of the TE (or 9 months prior to the estimated operational closure date).

**235.** The evaluation will be 'independent, impartial and rigorous'. The evaluators that UNDP will hire to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated. The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the BPPS/Environment Directorate. The final TE report and TE TOR will be publicly available in English and posted on the **UNDP ERC by August 15, 2028**. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report's completion.

**236. Final Report:** The project's terminal GEF PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up and approve the exit strategy of the project. The final report, the monitoring and evaluative knowledge and the roles and responsibilities for the implementation of the exit strategy will be presented to the stakeholders and key project partners during the final workshop of the project.

**237. Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information:** To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy<sup>48</sup> and the GEF policy on public involvement<sup>49</sup>.

**Monitoring Plan:** The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored by the Project Management Unit annually, and will be reported in the GEF PIR every year, and will be evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. Project risks, as outlined in the risk register, will be monitored quarterly.

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<sup>48</sup> See [http://www.undp.org/content/undp/en/home/operations/transparency/information\\_disclosurepolicy/](http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/)

<sup>49</sup> See [https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
<p><b>Project objective</b></p> <p>To promote land degradation neutrality, restore and improve the use of land and water resources in Armenia's Lake Sevan Basin to enhance the sustainability and resilience of livelihoods, biodiversity and globally significant ecosystems</p>	<p><b>Indicator 1.</b> <b>(GEF 7 Core Indicator 11)</b> Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment:</p>	<p><i>Mid Term:</i> <i>Total:3,500 (1,750 women and 1,750 men)</i></p> <p><i>End of Project (EoP)</i> <i>Total:65,800</i></p>	<p>The indicators reflect:</p> <p>(i) number of public sector employees of key partner institutions benefiting from project activities</p> <p>(ii) number of local resource users participating in, benefiting from, the project activities (project demonstrations; Agri-Environmental Payment Scheme; project trainings and awareness activities; strengthened extension services); the number represents a conservative estimate of the total local population employed in agriculture in the targeted districts expected to take up/benefit from SLM practices.</p> <p>(iii) number of PA staff participating in the</p>	<p>Annual project team analysis of number of people directly benefiting from project activities. National statistics. Project internal sources such as: list of training participants and KM product distribution lists will be analyzed as data sources/ Project beneficiary institutions will be approached to contribute to data collection such as:</p> <p>(i)water, land, biodiversity resource managers (authorities) participating in trainings sessions and/or awareness raising events;</p> <p>(ii) local communities natural resource users participating in the project's events</p> <p>(iii) PA staff participating in the project's capacity building and knowledge product development;</p> <p>(iv) PAs units staff targeted by trainings and awareness activities; researchers benefiting from PAs strengthened infrastructure;</p> <p>(v) research institutions, NGOs engaged in biodiversity assessments, pasture inventories, forestry management measures, agricultural policy developers;</p>	<p>Annually</p> <p>Reported in DO tab of the GEF PIR</p>	<p>Project manager and Task Leaders UNDP Country office M&amp;E consultant</p>	<p>Project reports validated by GEF Midterm and Terminal evaluation. Official records of the public events; Official national and local authorities directly participating in/benefiting from the project activities; Farmer and household surveys; Interviews with key stakeholders; records of radio/TV talk shows publicly available; other KM products publicly available.</p>	<p><b>Risks:</b> Large scale staff turnover in participating institutions and agencies. Limited benefits for the producers who adopted environmentally friendly practices. Women participation is hindered by social and cultural preferences for women to maintain household.</p> <p><b>Assumptions:</b> Local resource users and government officials of key project partners actively involved in project activities. Proposals submitted for mobilization of funding under different government programmes are successful,</p>

<sup>50</sup> Data collection methods should outline specific tools used to collect data and additional information as necessary to support monitoring. The PIR cannot be used as a source of verification.

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
			<p>trainings (all the initial PAs [that were considered initially at PIF stage] will be benefiting from trainings);</p> <p>(iv) number of tourists benefiting from project-supported eco-tourism activities and Ramsar site valorization ecotourism offers.</p> <p>(v) Number of beneficiaries of the investments in the irrigation infrastructure under Output 3.1.2.</p>	<p>(vi) local community representatives directly benefiting from improved pastures and forests</p> <p>(vii) beneficiaries of the micro-grants scheme (and their household family members benefiting from improved livelihoods).</p> <p>(viii) records of radio/TV talk shows publicly available;</p> <p>(ix) official records of people supported by the extension services that were themselves supported/trained by the project;</p> <p>(x) project supported local ecotourism beneficiaries; WUAs.</p>				
	<p><b>Indicator 2. (GEF 7 Core Indicator 1.2)</b> Terrestrial protected areas created or under improved management for conservation and sustainable use (ha)</p>	<p><i>Mid Term:</i> Biodiversity mapping, and GIS analysis Training Needs Assessment (TNA) finalized Midterm progress assessed- METT scorecards  <i>EoP 147,456 ha</i></p>	<p>This indicator is based on the corresponding global-level GEF 7 indicators. This project indicator is designed to align with and feed into this global level reporting.</p>	<p>Baseline data according to NBSAP; MoE data; WWF report; National communications;</p>	<p>Annually Reported in DO tab of the GEF PIR</p>	<p>MoE/PIU Project manager UNDP Country office M&amp;E consultant</p>	<p>Project technical reports, METT scorecards validated by the project final evaluation.</p>	<p><b>Risks:</b> Project team fails to secure official approval necessary for formal designation of new PAs; lack of political support; shifting government priorities due to Covid-19.  <b>Assumptions:</b> Interest from the central government, private sectors and farmers in biodiversity conservation; No major negative impacts (e.g., Covid-19) on the availability of the state budget for the protection</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
								and management of new and existing PAs.
	<p><b>Indicator 3. (GEF 7 Core Indicator 4)</b> Area of landscapes under improved practices (hectares, excluding PAs) <i>(sum of Indicators 12; Indicator 13 and Indicator 15 below)</i></p>	<p>Mid Term: Baseline methodologies agreed. Expert biodiversity and land resources mapping necessary for the preparatory work completed; GIS analysis completed.  <b>EoP:</b> <i>165,800 ha</i></p>	<p>This indicator is based on corresponding global-level GEF 7 indicators. This project indicator is designed to align with and feed into this global level reporting.  The target represents the sum of <b>150,000</b> ha of pastureland (Output 3.1.1); <b>10,000</b> ha irrigated land (Output 3.1.2); <b>5,800 ha</b> forest (Output 3.1.3)</p>	<p>Official data: from Local authorities (LSG), Pasture Users Cooperatives (PUC), Water Users Associations (WUAs) and Hayantar State Agency; official agreements with MoE; Ministry of Economy records; WWF records; Official data from MoE.</p>	<p>Annually  Reported in DO tab of the GEF PIR</p>	<p>MoE/PIU Project manager/Task Leaders  UNDP Country office  M&amp;E consultant</p>	<p>Project reports and documentation, e.g., annual reporting in PIR; Written agreements with PUCs, WUAs, private farmers, and local authorities, including monitoring scheme; Successful completion of project activities for relevant project components, as verified by the MTR and TE.</p>	<p><b>Risks:</b> Stakeholders are reluctant to adopt SLM measures and improved practices, due to the lack of a stronger enabling framework and sufficient incentives.  <b>Assumptions:</b> Environmental/climate variability within normal range. Uptake of SLM practices promoted through integrated land use planning and LDN mandatory guidelines. Existing interest from local communities to participate in project activities and continue on sustainability path. A critical mass of understanding and awareness exists to compel local natural resource users to uptake demonstrated SLM measures.</p>
	<p><b>Indicator 4. (GEF 7 Core Indicator 6.1)</b> GHG emissions mitigated (tCO<sub>2</sub>-eq)</p>	<p><i>Mid-term:</i> No change. Project outcomes and impacts not yet at stage where GHGs avoided/sequestered  <b>EoP:</b> <i>1,403,851</i></p>	<p>This indicator is based on corresponding global-level GEF 7 indicators. This project indicator is designed to align with and feed into this level reporting.</p>	<p>Based on calculations from the FAO EX-ACT tool.</p>	<p>Final PIR</p>	<p>Project manager</p>	<p>Field/plot surveys. Project reports. Updated GEF7 Core Indicator 4; validated by the final GEF evaluation.</p>	<p><b>Risks:</b> The project may fail to engage key partners in implementing the envisaged measures that will lead to the targeted reduction of GHG emissions.</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
			The indicator represents GHG emissions avoided as a result of improved pastures/grasslands condition (at 150,000 ha) and regenerated forests 2,200 ha. The baseline is N/A (as the project implementation has not started yet). The midterm target is 0 as the project activities are not yet at a stage where GHG avoided/sequestered can be considered. The target is calculated using FAO EX-ACT tool.					<b>Assumptions:</b> Per assumptions in EX-ACT tool Project activities are implemented in the foreseen manner, in the planned areas.
<b>Project Outcome 1</b> Promoting Land Degradation Neutrality in Lake Sevan Basin landscape to ensure productivity and ecological landscape resilience	<b>Indicator 5.</b> Jurisdictions in Sevan Basin with LDN regional voluntary targets, action plans and monitoring systems in place	<i>Midterm:</i> <i>LDN baseline validated</i>  <i>EoP:</i> <b>2</b> <b>(LDN regional targets set in Gegharkunik and Vayots Dzor regions/marzes)</b>	The indicator focuses on the LDN subnational level (at marz level) in Gegharkunik and Vayots Dzor regions (Output 1.1.1).  The target is to have the LDN Regional targets for Gegharkunik and Vayots Dzor identified, formally approved, LDN monitoring and LDN progress reporting from subnational to national level set up.	MoE national reports under conventions; interviews with UNCCD focal point; regional statistics; Governor's reports;	Annually Reported in DO tab of the GEF PIR	Project Manager; LDN/Land Specialists, Project Task Leaders; Pastures/Fo rests specialists M&E expert.	Existing official information at marz level; Interviews with stakeholders and regional authorities; MTR and final evaluation reports validations.	<b>Risks:</b> National authorities may not formally approve the LDN targets, action plans and monitoring arrangements. This means that LDN targets may not be implemented, reported, monitored consistently.  <b>Assumptions:</b> Interest from the local/regional and central government, private sectors and farmers in achieving land degradation neutrality through a combination of Sustainable Land Management (SLM) measures.



Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
	<b>Indicator 6.</b> Status of LDN compatible integrated spatial and land use planning in Sevan Basin landscape.	<i>Midterm:</i> LUP4LDN operational and used by the local authorities for the development of ISLUPs Trainings on LUP4LDN for local authorities conducted Methodology for ISLUPs development agreed upon; ELD analysis finalized  <i>EoP</i> <b>6 LDN-compatible Integrated Spatial and Land use plans (ISLUPs) completed, adopted and under implementation for the targeted districts in Gegharkunik and Vayots Dzor provinces</b>	This indicator is focusing on the integrated land use planning, as a mean of achieving land degradation neutrality (LDN) and an improved land/water governance in Sevan Basin KBA/IBA PA buffer zones and productive zones. The target is represented by: Formally approved 6 Integrated LDN centred Spatial, and Land Use Plans supported by LUP4LDN software in the targeted communities.	Local authorities official records of the existence of 6 Integrated Land Use plans in the targeted communities	Annually Reported in DO tab of the GEF PIR	Project Manager; Task Leader Outcome 1, LDN/Land Specialists, M&E expert.	Existing official information at marz level and spatial land use plans under implementation ; GIS analysis of integrated management plan maps validated by Final Evaluation; Interviews with stakeholders and marz (region) authorities; MTR and final evaluation reports;	<b>Risks:</b> The project may fail to fully secure engagement of the local/national authorities in the spatial land use planning; National authorities may not approve the ISLUPs formally; technical capacities and political will may be absent.  <b>Assumptions:</b> Land degradation high among local/regional priorities; existing awareness and acknowledgement on the importance of LDN compliant integrated land use planning; exiting interest from the national and community level authorities to implement integrated spatial land use planning, that will become mandatory and will lead to achieving land degradation neutrality targets at province level; local self-government capacitated to use LUP4LDN.
<b>Project Outcome 2.1</b>	<b>Indicator 7.</b> Change in the capacity of the management of key Protected Areas to	<i>Midterm:</i> <i>Sevan National Park</i> <i>METT Score: 39</i>	The target values have been projected based on the analysis of the weaknesses in the METT scores for Sevan National Park (PA), based on the	Field observations; PAs official reports; WWF reports.	Inception, Midterm, End of project	Project Manager; PAs specialists M&E	Project reports and METT validated by MTR and final evaluations.	<b>Risks:</b> Expected increase in the PAs management effectiveness is not achieved due to staff turnover and decreased

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
	implement effective biodiversity conservation and sustainable management measures	<i>EoP</i> <i>METT score= 44</i>	analysis of the individual METT score question. An increase of at least <b>20%</b> is envisaged by EoP due to the project support rendered at several levels. There are some areas of weakness that the project will have little or no influence on, while there are other areas where the project should reasonably improve the METT scores of the PA (Biodiversity monitoring and research capacities; technical knowledge through trainings; patrolling capacities and community outreach; firefighting and climate sensitive management of biodiversity; patrolling and enforcement of legislation; mobilization of funds and promotion of eco-tourism based on the valorization of Sevan Ramsar area). The METT scores should be annually re-assessed <sup>51</sup> and validated during midterm and final evaluation.			expert/project officer		investments into PAs infrastructure.  <b>Assumptions:</b> Interest from the central government, private sectors and farmers in biodiversity conservation; No major negative impacts (e.g., Covid-19) on the availability of the state budget for the protection and management of existing PAs.

<sup>51</sup> During the project implementation, revising these METT scores at the end of the year is recommended, and assessment should be done as realistically as possible ( e.g. weakness need to be highlighted in order to sharpen the focus of the project’s support). GEF evaluations will validate the METT scores.

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
	<p><b>Indicator 8.</b> Stable or positive changes in the population of globally significant biodiversity at Sevan National Park</p> <p>Bezoar goat (<i>Capra aegagrus aegagrus</i>) European otter (<i>Lutra lutra</i>) NT Common pochard (<i>Aythya ferina</i>) VU; European turtle-dove (<i>Streptopelia turtur</i>) VU; Great cormorant (<i>Phalacrocorax carbo</i>); Steppe viper (<i>Vipera eriwanensi</i>) VU</p>	<p>Midterm target changes: As indicated in the METT scorecards</p> <p><b>End project target changes:</b> As indicated in the METT scorecards</p>	<p>These species have been selected to serve as indicators based on several considerations: (i) they will be positively affected by the project interventions; (ii) are considered keystone species so that a positive change in species population reflects a positive change in the surrounding habitat; (iii) population can be reasonably monitored over multiple years, and (iv) there are global, or national Red List or endangered species or endemic or “iconic” for the country or the region. The project is aiming at minimizing threats to the PA, and if threats are minimized, a possible positive change in the population of indicator species can be documented within a few years, and therefore the project target is designed to set the project ambitions at contributing to an increase in the targeted indicator species populations.</p>	<p>Field observations; MoE/ PAs official reports; WWF reports.</p>	<p>Annually Reported in DO tab of the GEF PIR</p>	<p>Project Manager; PAs specialists M&amp;E expert/project officer</p>	<p>Project reports and METT validated by MTR and final evaluations.</p>	<p><b>Risks:</b> Major reshuffling of government priorities in view of Covid 19, may redirect attention and resources away from PAs system strengthening (as listed in NBSAP).</p> <p><b>Assumptions:</b> Project lifetime is sufficient to allow impacts to be generated and monitored; New threats do not emerge.</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
	<b>Indicator 9.</b> # of Public-Private Partnerships promoting Lake Sevan biodiversity values	<i>Midterm:</i> PPP potential validated Innovation Challenge organized <i>EoP: 2 Public Private Partnerships</i> promoting Lake Sevan biodiversity values Innovative PA financing mechanism identified and implemented	This target is focusing on the mobilization of funds for the Sevan National Park through facilitation of PPs with private tourism/ecotourism operators and promotion of innovative PA funding tools.	MoE/ PAs official reports; WWF reports; private sector (PPP) representatives promotion materials.	Annually Reported in DO tab of the GEF PIR	Project Manager; PAs specialists M&E expert/project officer	Project reports and METT validated by MTR and final evaluations.	<b>Risks:</b> Reinstatement of Covid 19 limitations; limited interest from the tourism sectors for the type of nature-based ecotourism promoted by the PA and supported by the project. <b>Assumptions:</b> New public health or other type of risks/ threats do not emerge.
<b>Project Outcome 2.2</b>	<b>Indicator 10.</b> Number of comprehensive assessments with conservation measures targeting biodiversity hotspots outside PAs identified, justified for protection	<i>Midterm:</i> Field studies and mapping of KBAs/IBAs Wildlife Sanctuaries in Sevan Basin landscape completed Field samples of Palearctic grasslands conducted Mapping of Easter Lesser Caucasus Ecological Corridor <i>EoP:</i> <b>3 Assessments (Assessment of KBA/IBA, Wildlife Sanctuaries</b> status in	The targets are focusing on improving the availability of data on flora, fauna and habitats outside PAs and the more detailed assessments of the Palearctic grasslands' biodiversity. Climate change considerations will be addressed. Spatial requirements of the biodiversity (species, habitats) will be identified. The target is to eventually mainstream the spatial requirements of the valuable habitats (key biodiversity) within integrated land use planning at local levels.	WWF reports and MoE reports and data base; CBD national communications;	Annually Reported in DO tab of the GEF PIR	Project Manager; PAs specialists M&E expert/project officer	Project reports and METT validated by MTR and final evaluations.	<b>Risks:</b> Limited interest from the local authorities and representatives ministries, cadaster offices, private sector to consider mainstreaming biodiversity in land use planning. <b>Assumptions:</b> There is a critical mass of willingness to include spatial requirements of biodiversity in land use, and the necessary capacity to do so. There is a critical mass of understanding of the importance of Armenia's biodiversity and the negative consequences of harmful practices, chaotic development, toxic

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		<p>prioritized areas of Lake Sevan Basin landscape completed</p> <p><b>Mapping of globally important species and wildlife habitats</b> in the Eastern Lesser Caucasus Corridor (in <i>Gegharkunik region</i>) completed and conservation measures and biodiversity spatial requirements identified</p> <p><b>Assessment of grasslands, including Palearctic grasslands'</b> biodiversity status in prioritized communities of Gegharkunik and Vayots Dzor regions</p>						mining and impact on habitat fragmentation of roads development.
	<p><b>Indicator 11.</b></p> <p>Existence of Methodology for Biodiversity conservation considerations and spatial elements mainstreamed in land use planning</p>	<p><i>Midterm:</i></p> <p>Draft Methodology developed for the incorporation of biodiversity conservation requirements into spatial planning and management of land use developed.</p>	<p>The targets are focusing on the availability of the methodology and capacities for mainstreaming the spatial requirements of valuable flora, fauna and habitats outside PAs in the land use planning processes.</p>	<p>WWF reports and MoE reports and data base; CBD national communications</p>	<p>Annually Reported in DO tab of the GEF PIR</p>	<p>Project Manager; PAs specialists M&amp;E expert/project officer</p>	<p>Project reports and METT validated by MTR and final evaluations</p>	<p><b>Risks:</b> Limited capacities to develop mainstreaming methodologies; Limited interest from the local authorities and representative ministries, cadaster offices, private sector to consider mainstreaming biodiversity in land use planning.</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		<p>EoP:</p> <p><b>Methodology</b> for mainstreaming biodiversity in land use planning and improving natural ecosystems connectivity for wildlife migration, formally approved and under implementation</p>						<p><b>Assumptions:</b> There is interest from the academia to participate in the project and support the development of inventories and methodologies to mainstream biodiversity in land use planning.</p> <p>There is a critical mass of understanding of the importance of Armenia's biodiversity and the negative consequences of harmful practices, chaotic development, toxic mining and impact on habitat fragmentation of roads development.</p>
Project Outcome 3	<p><b>Indicator 12.</b> <b>(GEF Indicator 4.1)</b> Area (ha) of sustainable pastureland regimes</p>	<p><b>Midterm</b> Pasture/grasslands inventories completed GIS analysis finalized Sustainable pasture management plans for 75,000 ha of pastures and grasslands developed.</p> <p><b>EoP: 150,000 ha of pastures and grasslands</b> under sustainable management with</p>	<p>This indicator is based on corresponding global-level GEF 7 indicators.</p> <p>It feeds into Indicators under the Project Results framework.</p>	<p>Project supported expert mapping according to LDN avoid/reduce/restore hierarchy.</p> <p>Forestry enterprises/units reports and monitored indicators.</p> <p>Ministry of Environment (forestry unit) and Ministry of Economy official data</p>	Annually Reported in DO tab of the GEF PIR	Project Manager, Task Leader Component 2 Field coordinator IP/RP UNDP Country office	Field verification reports (based on the agreed monitoring scheme embedded into the plans) validated by Project terminal evaluation report;	<p><b>Risks:</b> The project may fail to engage the key partners and local communities in the implementation of SLM measures designed by the project, due to their lack of funding and interest.</p> <p><b>Assumptions:</b> Environment/climate variability within normal range. Uptake of SLM practices and integrated land use planning is optimal; Existing interest from local communities to participate in project activities due to the</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		the support of Pasture Users Associations in the targeted areas						demonstrated socio-economic benefits and understanding of the importance of resilient ecosystems.
	<b>Indicator 13.</b> <b>(GEF Indicator 4.3)</b> Area (ha) of irrigated/arable land under sustainable water and land management plans	<b>Midterm:</b> Baseline assessments and methodologies developed. Land degradation patterns and water use patterns analyzed. GIS supported analysis finalized Proposals submitted for the mobilisation of co-financing for implementation of the irrigation infrastructure repairs. <b>EoP : 10,000 ha</b>	The midterm target represents the minimum progress necessary for full achievement of the Output.  The end of Project targets represents the PPG experts' estimations regarding positive changes that could be attained through the repairs of the irrigation infrastructure.	Water Committee's land and water use data; WUAs official records; local authorities data.  Expert mapping according to LDN avoid/reduce/restore hierarchy  GIS supported data in the selected agricultural areas.	Annually Reported in DO tab of the GEF PIR	Project manager/ Task Leader Component 1 and Field Coordinators  IP/RP  UNDP Country office	Field monitoring (using the monitoring scheme embedded in these plans). Midterm and Final GEF evaluation project reports.	<b>Risks:</b> Shift in Government priorities; the WUAs (project supported) proposals not approved; co-financing for the implementation of the Sustainable Water/Land plans not fully secured;  <b>Assumptions:</b> Integrated Water/Land Management Plans will be officially approved and implemented with Government financing  Government has a keen interest to support remote and impoverished villages exposed to drought and water scarcity reform water sector, reduce water waste and use for fertilisers in Sevan basin.
	<b>Indicator 14.</b> <b>(GEF Indicator 3.2)</b> Area (ha) of degraded forest restored.	<b>Midterm:</b> Forest degradation patterns analyzed Forest management plans (Hayantar) assessed, and	This indicator is based on corresponding global-level GEF 7 indicators.  This project indicator is designed to align with and	Official data: from Local authorities (LSG), Pasture Users Cooperatives (PUC), Water Users Associations (WUAs) and Hayantar State Agency; official agreements with MoE;	Annually  Reported in DO tab of the GEF PIR	MoE/PIU Project manager/Task Leaders	Project reports and documentation, e.g., annual reporting in PIR; Written agreements	-Project risk management strategy is instrumental in management of risks that derail implementation  - Baseline sectoral policy (forestry and agriculture as

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		<p>recommendations developed (i.e., climate sensitive forest restoration measures)</p> <p>GIS supported analysis finalized</p> <p>Methodology for the forest restoration developed</p> <p><b>EoP:</b> 2,200 ha</p>	feed into project Indicator 4.	Ministry of Economy records; WWF records; Official data from MoE.		UNDP Country office M&E consultant	with PUCs, WUAs, private farmers, and local authorities, including monitoring scheme; Successful completion of project activities for relevant project components, as verified by the MTR and TE.	relevant to the project) development not hampered by processes and risks outside the project control.
	<p><b>Indicators 15.</b> <b>(GEF Indicator 4.3)</b> Area (ha) of forest ecosystems under climate-change sensitive sustainable forest management plans</p>	<p><b>Midterm target:</b> Forest degradation patterns analyzed</p> <p>Existing Forest management plans (Hayantar) assessed/ Recommendations/updates developed (i.e., including climate sensitive sustainable forest management measures mainstreamed in the existing plans)</p> <p>GIS supported analysis finalized.</p> <p><b>EoP:</b> 5,800 ha</p>	<p>This indicator is based on corresponding global-level GEF 7 indicators.</p> <p>This project indicator is designed to align with and feed into Project Indicator 2.</p>	<p>Project supported expert mapping according to LDN avoid/reduce/restore hierarchy.</p> <p>Official reports developed and submitted by the Forestry enterprises.</p> <p>Ministry of Environment; Hayantar Agency; Ministry of Economy official data.</p>	Annually Reported in DO tab of the GEF PIR	Project Manager M&E/GEF expert Task Leader Component 3 UNDP Country office	Field verification reports (based on the agreed monitoring scheme embedded into the plans) validated by Project terminal evaluation report; Updated Forests management plans integrated with the Hayantar Agency forest plans.	<p><b>Risks:</b> The project may fail to engage the key partners and local communities in the implementation of sustainable forestry measures and other SLM measures (to alleviate pressure on forests) designed by the project, due to their lack of funding and interest.</p> <p><b>Assumptions:</b> Environmental/climate variability within normal range. Uptake of SLM practices and integrated land use planning is optimal; Existing interest from local communities to participate in project</p>



Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
								activities due to the demonstrated socio-economic benefits and understanding of the importance of resilient ecosystems.
	<p><b>Indicator 16.</b></p> <p>Number of agreements with local communities, to ensure biodiversity conservation and safe wildlife migration within the Eastern Lesser Caucasus corridor.</p>	<p><b>Midterm:</b></p> <p>Identification of the local communities completed</p> <p>Conservation measures identified and agreed with local communities</p> <p>Facilitation of conservation agreements in advanced stage</p> <p><b>EoP:</b>5 Conservation Agreements</p>	<p>The target is focusing on the successful involvement of local communities in conservation activities represented by agreements on ecological corridors for safe passage of the wildlife and expansion of their feeding base (based on WWF Armenia's experience with Caretakers Network).</p>	<p>Ministry of Environment and WWF Armenia reports/ official data; local interviews.</p>	<p>Annually Reported in DO tab of the GEF PIR</p>	<p>Project Manager, Task Leader Component 2 and 3.1.4, PAs specialists</p>	<p>Monitoring via annual project reporting (PIRs) verification at MTR and final project evaluation; project reports; workshop proceedings.</p>	<p><b>Risks:</b> The project may fail to involve the local communities in the PAs management.</p> <p><b>Assumptions:</b> Local communities are aware of biodiversity values and are interested in supporting biodiversity friendly agricultural practices and support ecological connectivity and wildlife safe passage.</p>
	<p><b>Indicator 17.</b></p> <p>Small farmers' (grantees) net income (differentiated by gender) from sustainable practices (livestock, hay, seeds, dried fruits, medicinal plants, handicrafts, eco-tourism)</p>	<p><b>Midterm:</b></p> <p>Net Income men: \$X + 10%</p> <p>Net income women: \$X + 10%</p> <p>Participating farmers/households show at least 10% increase based on year 1 estimate.</p> <p><b>EoP:</b></p>	<p>This indicator feeds into Indicator 1.</p> <p>It does assess the income increase of the grantees (grantees are those benefiting from the grant mechanism of the project under Output 3.1.4; these grants support a series of SLM practices and are focused on local communities around the project selected areas</p>	<p>Local Self Government (LSG) official records; Surveys; bilateral interviews. UNCCD/WOCAT knowledge platform project contribution (recorded socio-economic benefits);</p>	<p>At the beginning, midterm and end of project.</p>	<p>Project Manager, Task Leaders (all), Field Coordinator s Pastures/ Forests and PAs specialists (consultants ); Project Economists; M&amp;E/GEF</p>	<p>Monitoring via annual project reporting (PIRs) verification at MTR and final project evaluation; project reports; workshop proceedings.</p>	<p><b>Risks:</b> Socio-economic benefits may fail to materialize, due to lack of appropriate SLM implementation.</p> <p><b>Assumptions:</b> No major risk to project activities emerge; climate change within the predictable parameters; co-financing stable.</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
	resulted from biodiversity friendly agricultural practices in PA and KBAs/IBAs buffer and production zones, within the Eastern Lesser Caucasus corridor	Net Income men: \$X + 20% Net income women: \$X + 20% Participating farmers show 20% increase based on year 1 estimate.	(pastures, forests, arable lands; degraded lands)			expert; SES experts; Gender expert.		
	<b>Indicator 18.</b> Existence of financial mechanism for sustainable pastures management to benefit biodiversity	<b>Midterm:</b> Agri-payment scheme's KPI identified and agreed with the official authorities at community level and Pasture Users Associations. Trainings of the Pastures Users Associations completed Agreements with the Pasture Users Associations signed <b>EoP:</b> Key Performance Indicators (KPI) based Agri-Environmental Payment Scheme operational	The targets represent the minimum necessary results for the achievement of the Output	Ministry of Environment and Ministry of Economy; PUC/PUAs records; Project field-monitoring fiches.	At the beginning, midterm and end of project.	Project Manager, Task Leaders (all), Field Coordinator s Pastures/ Forests and PAs specialists (consultants ); Project Economists; M&E/GEF expert; SES experts; Gender expert.	Monitoring via annual project reporting (PIRs) verification at MTR and final project evaluation; project reports; workshop proceedings.	<b>Risk:</b> The project may fail to reach out to the wide majority of local stakeholders and natural resource users. <b>Assumptions:</b> Effective dissemination of knowledge products regarding integrated water and land management, LDN/SLM ecological and economic benefits.

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
<b>Component 4</b>	<b>Indicator 19.</b> Number of SLM capacity building events, project awareness raising events and targeted gender sensitive KM products on LD and BD issues in Lake Sevan Basin. Project knowledge products include, where feasible, an analysis of gender equity/empowerment in relation with the specific knowledge topic.	<b>Midterm:</b> Training Needs Assessment completed. Training modules designed. Behavior change-supported Testing Phase designed (for the desired/selected change in farmers' behavior). Awareness raising and Communication Plan developed. 15 trainings implemented. 10 awareness events implemented. • <b>EoP:</b> Pasture Users Associations on SLM measures and climate resilient sustainable agricultural practices and rural entrepreneurship • <b>3 training workshops for the Water User Associations (WUAs)</b> on sustainable LDN compatible farming and	This indicator is focused on improvements of the general level of awareness and understanding on the project thematic areas, conducive to the desired behavioural change.  The indicator is intended to be an outcome level indicator that tracks results under Outcome 4.1. The targets have been set at a reasonable number, deemed achievable with available resources.	Questionnaires/ surveys Project reports	Annually Reported in DO tab of the GEF PIR	Project manager Task Leader Component 4, Field coordinator s, KM consultant UNDP CO	Project online knowledge repository. Questionnaires with results validated by MTR and final project evaluation.	<b>Risks:</b> The project may fail to reach out to the wide majority of local stakeholders and natural resource users.  <b>Assumptions:</b> Effective dissemination and use of knowledge products regarding integrated water and land management, LDN/SLM ecological and economic benefits. Training seminars and farmers field schools imparting knowledge that is useful and applied to the field.

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		climate smart irrigation <ul style="list-style-type: none"> <li>• <b>6 Farmers Field Schools in the targeted communities sharing lessons learned and good SLM practices</b></li> <li>• <b>6 Trainings</b> on Project/Proposal writing for local authorities and local natural resource users</li> <li>• <b>6 local training sessions on eco-tourism</b></li> <li>• <b>LDN Regional Workshop</b> to share experience, generated knowledge, challenges, and opportunities in LDN regional target setting.</li> <li>• <b>Functional network</b> of agriculture extension providers set up</li> </ul>						

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		<ul style="list-style-type: none"> <li>• <b>20 gender sensitive awareness raising events</b></li> <li>• <b>20 Radio Talk Shows</b> for farmers with a segment for women farmers</li> <li>• <b>Available gender-sensitive LDN /SLM/biodiversity training/information materials</b> and country-specific knowledge shared on UNCCD/ WOCAT platform; FAO platform; CARMAC platform; Adaptation Fund project platform</li> <li>• <b>Project-video Documentary</b></li> <li><b>Project web site and social media platforms</b></li> </ul>						
	<p><b>Indicator 20.</b> Existence of guidance, methodologies and tools for LDN compatible biodiversity-sensitive spatial and land use</p>	<p><b>Midterm:</b> Field assessments for LDN and integrated land use planning, land degradation assessments and Biodiversity assessments completed</p>	<p>The indicator is reflecting the means to enable the sustainable land management measures, aligned with LDN and including biodiversity consideration.</p>	<p>Official records of the responsible agencies mandated with land/water/biodiversity recourse management;</p>	<p>Annually Reported in DO tab of the GEF PIR</p>	<p>Project manager/ Task Leaders IP/RP UNDP Country office</p>	<p>Field monitoring. Midterm and Final GEF evaluation project reports</p>	<p><b>Risks:</b> legal amendments, tools and methodologies produced by the project, are not officially adopted and implemented. The project may fail to adequately inform and/or engage the interested stakeholders.</p>

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
	planning in targeted municipalities, informed by LDN principles; Biodiversity considerations; ELD concept-facilitating upscaling and replication of generated project experience.	Manuals and guidelines outline discussed and agreed with the national counterparts <b>EoP:</b> <ul style="list-style-type: none"> <li>• <b>Manual</b> on LDN compatible and biodiversity friendly integrated spatial land use planning for climate resilient ecosystems and livelihoods</li> <li>• <b>Project Sustainability and Replication Strategy</b> presented and endorsed by project Board and Ministry of Environment</li> <li>• <b>Technical assessments</b> of biodiversity outside PAs and conservation measures for increasing ecosystems connectivity</li> <li>• <b>Recommendations for behaviorally informed public</b></li> </ul>						<b>Assumptions:</b> There is a stated and clear interest of the Government towards nature positive solutions and institutionalization of these tools and methodologies.

Results Monitoring	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods <sup>50</sup>	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		<p><b>policies</b> for a wider uptake of biodiversity sensitive SLM measures and advance towards Land degradation Neutrality in Lake Sevan Basin</p>						
<b>Component 5</b>	<p><b>Indicator 21.</b> Functioning M&amp;E system and monitoring of GEBs and co-benefits established</p>	<p>Midterm: Midterm evaluation report M&amp;E activities EoP: <b>-Reports</b> with monitored and evaluated project results (GEF midterm and final reports) <b>-Quarterly monitoring</b> activities (UNDP) <b>-GEB monitoring</b> criteria included in Agri-Environmental Payment Scheme and grants contracts.</p>	As per UNDP/GEF rules	Project reports and minutes of meetings with national/local stakeholders to impart evaluative knowledge;	Mid term End of project Annually	Project manager M&E/GEF consultant Gender consultant	Monitoring via PIRs (annual project reports) validated by MTR and final evaluation.	All relevant stakeholders support is in accordance with gender mainstreaming efforts undertaken by the project. There are no major risks to project activities.

<b>Monitoring and Evaluation Budget for project execution:</b>		
<b>GEF M&amp;E requirements to be undertaken by Project Management Unit (PMU)</b>	<b>Indicative costs (US\$)</b>	<b>Time frame</b>
<b>Inception Workshop and Report</b>	5,000	Inception Workshop within 2 months of the First Disbursement
<b>M&amp;E required to report on progress made in reaching GEF core indicators and project results included in the project results framework</b>	50,000 (costs of M&E expert)	Monitoring will be on going. Reported annually and at mid-point and closure.
<b>Preparation of the annual GEF Project Implementation Report (PIR)</b>	None	Annually typically between June-August
<b>Monitoring of SESP and ESMF</b>	None (Costs Included under BL 10, BL 25, BL 49)	On-going.
<b>Supervision missions</b>	None	Annually
<b>Learning missions</b>	None	As needed
<b>Independent Mid-term Review (MTR)</b>	28,000 <sup>52</sup>	15 May 2026
<b>Independent Terminal Evaluation (TE)</b>	28,000 <sup>53</sup>	15 August 2028
<b>Final project workshop (M&amp;E and exit strategy)</b>	5,000	Planned end of project by 30 September 2028
<b>TOTAL indicative COST</b>	116,000 (3.2% of GEF grant)	

<sup>52</sup> Sum of: \$21,000 International consultant+\$2,000 National consultant+\$5000 travel

<sup>53</sup> Same as above



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## VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

### Section 1: General roles and responsibilities in the projects' governance mechanism

**238. Implementing Partner:** The Implementing Partner for this project is the Ministry of Environment (MoE) through its Environmental Project Implementation Unit (EPIU). The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

**239.** The Government of Armenia established the Environmental Project Implementation Unit (EPIU) in 2010 by the Decree of the Government of the Republic of Armenia No. 1191-N based on the previously operating "Center for Environmental Programs" SNCO, which was the successor of the state institution "Natural Resources Management and Poverty Reduction" PIU. The EPIU is part of the Ministry of Environment's structure, and it is mandated to enable the execution of state-funded and donor-funded projects on behalf of the MoE. The EPIU is functioning under the MoE mandate, responsible for contributing to policy implementation through specific projects. The management and supervision of the EPIU is carried out by the founder (Government of Armenia) and the authorized body (Ministry of Environment). EPIU is mandated to implement various multilateral donor-supported projects (e.g., FAO, WB) and bilateral donor funded initiatives. EPIU has the mandate to conduct financial transactions and manage distinct treasury accounts with the purpose of supporting the Ministry of Environment to efficiently implement the external and internal financial and technical assistance projects, in accordance with the provisions of the national normative acts regarding the implementation of the requirements of the international conventions, and the alignment with the international standards in the field of environmental protection.

**240.** The UNDP Partner Capacity Assessment Tool (PCAT) confirmed that the Ministry of Environment (MOE)/EPIU has the institutional mandate in a field that is relevant for the project and responds to the key programmatic criteria, having the capacities to ensure quality programme management, provide synergies, replicate and upscale project results, mobilize development partners and ensure national-level co-financing for the project. The MOE has experience and technical capacity to supervise, monitor, and ensure adaptive management and risk response towards delivery of project outcomes and outputs. MOE will be supported by the EPIU in the implementation of this project. From this perspective and under this arrangement, the MoE will have substantive supervisory, leadership and strategic planning functions and roles, while the project administration responsibilities and functions (contracting, recruitment of personnel and experts, finance administration and administrative support to project processes) will be conducted by the EPIU under the leadership of the MOE.

**241.** The Implementing Partner (MoE) is responsible for executing this project. The main functions include:

- Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.
- Chairing the Project Board meetings.
- Monitoring the progress of the project at strategic level, towards the achievement of the development outcomes.
- Ensuring effective management of the Risks and Safeguards as outlined in this Project Document and management of new risks that may emerge during project implementation.
- Ensuring that the project partners will deliver the pledged co-financing.
- Ensuring that there is a coherent project organization structure and logical set of work plans.
- Set tolerances in the AWP and other plans as required for the Project Manager.
- Financial management, including overseeing financial expenditures against project budgets.
- Approving and signing the multiyear workplan.
- Approving and signing the combined delivery report at the end of the year; and,
- Signing the financial report or the funding authorization and certificate of expenditures.

**242.** The overall HACT Micro-assessment risk rating of the EPIU is “Low”. The two qualified findings of auditors under the HACT micro-assessment refer to financial and procurement capacities namely: 1) significant EPIU financial staff turnover (Low Risk) and 2) absence of technical control when a formal invitation to bid has been issued and following the consultations (Moderate Risk). Considering that these limitations could potentially hamper or delay project implementation, during the Project Inception Phase and in consultation with the Ministry of Environment and EPIU, a set of UNDP NIM/Project Management and targeted procurement and contract management related capacity building activities will be delivered in order to remove the identified capacity gaps highlighted by the HACT Micro Assessments. Further capacity building activities will be identified during the planned spot-checks and other monitoring activities as part of the UNDP oversight function. Adequate UNDP TRAC resources have been budgeted (reflected in the TBWP) for targeted NIM and Project Management focused trainings of the IP/EPIU.

**243.** The EPIU is integrated within MoE’s structure and will be accountable to the MoE in accordance with the responsibilities and obligations outlined in the EPIU statute and Government Decision No. 1191-N. The execution functions of the EPIU will include:

- Day-to-day project management.
- Contracting and contract management for procurement of goods, services, and works for the project.
- Certification for contract performance and acceptance of goods and services as per Project Procurement Plan.
- Financial management, including payments for goods and services involving national consultants and made in national currency.
- Logistical support, including duty travel for project personnel and consultants, project event management within the country.
- Equipment and Asset Management services, including IT equipment maintenance, licenses, and ICT support for the project team and project activities.
- Administrative support to the project.

**244.** The EPIU is implementing to date the following projects:

- *“Artik city closed stonepit wastes and flood management”* pilot project  
Duration: 2019 July – 2022 July  
Delivery to date: 99% completed
- *“Strengthening land-based adaptation capacity in communities adjacent to protected areas in Armenia”* grant project  
Duration: 2019 September – 2023 September  
Delivery to date: 50% completed
- *“Engaging Future Leaders: Digital Education Module on Adaptation Challenges and Best Practices for Youth”* grant project  
Duration: 2020 November – 2023 May  
Delivery to date: 99% completed
- *“Transition Towards Electric Mobility in Armenia”* grant project  
Duration: 2021 October – 2024 September  
Delivery to date: 20% completed
- *“Forest resilience of Armenia, enhancing adaptation and rural green growth via mitigation”* grant project  
Duration: 2022 January – 2029 November  
Delivery to date: 5% completed
- *“De-risking and Scaling-up Investment in Energy Efficient Building Retrofits”* grant project  
Duration: 2021 October – 2023 June  
Delivery to date: 18% completed
- *“Strengthening national-level institutional and professional capacities of country Parties towards enhanced UNCCD monitoring and reporting – Armenia”* grant project  
Duration: 2022 September – 2024 December  
Delivery to date: The agreement of the project has been signed in the beginning of September

**245.** The EPIU has the following staff capacity: Departments - Administrative and service staff, Project Implementation and Monitoring Department, Department of Cooperation with Donors, Administrative Affairs

and Procurement Department. Currently EPIU has 26 staff members including field office staff. The EPIU will receive cash advances. The HACT Micro- assessment has indicated that to date, EPIU had received cash advances on behalf of the Ministry of Environment from a number of donors and no difficulties have been encountered/reported with the management of those resources, aside of the capacity limitations and procurement highlighted in Finding no. 2 under the HACT micro-assessment, which will be addressed by targeted trainings during the project implementation, starting with the inception phase. The EPIU will support the implementation of project activities as per the Annual Work Plan, Procurement Plan and Budget, agreed with the Ministry of Environment and UNDP. The EPIU will be represented in the Board by Armen Yesoyan, EPIU Director.

**246. Responsible Parties:** The Responsible Party proposed for this project is WWF Armenia. The WWF Armenia was selected by the IP (MoE/EPIU) in consultation with UNDP CO, based on the following criteria: a) long-lasting experience with Protected Areas and biodiversity management; b) experience with wildlife population assessments and establishment of migration friendly corridors supported by the local communities; c) experience with the implementation of environmental incentives for biodiversity friendly agricultural practices around Key Biodiversity Areas (KBAs); d) successful record of implementing international donor funded projects. From this perspective, the WWF Armenia’s comparative advantage and internal capacities were acknowledged since the PIF stage and validated through HACT and PCAT assessments. Upon the project inception, the MoE/EPIU in its capacity as Implementing Partner (IP) of this project will enter into an agreement with WWF Armenia, for the realization of the Component 2 and Output 3.1.4, based on a final validation and budget fine-tuning that will be further agreed between parties during the inception period.

**247.** The results of the HACT and PCAT assessments of the WWF Armenia, are demonstrating that WWF Armenia has the capacity to implement projects and has a rich experience with biodiversity and PAs issues, local communities and advancement of sustainable agriculture practice in the PA KBAs/IBAs proximity. The consultations led by the MoE/EPIU with UNDP CO participation, have indicated that WWF Armenia is the most appropriate organization to implement the Component 2 (PA and biodiversity) and select Outputs under Component 3 (proposed Output 3.1.4) especially considering the complementarity with the WWF Armenia “*Promotion of Eco-Corridors in the Southern Caucasus Phase I and II*” project, and WWF Armenia’s experience in working with local communities and forging local partnerships and community endorsed eco-corridors.

**248.** WWF has been operating in Armenia since 2002 through its country office. Since 2002 WWF has implemented different projects focused on establishing/expanding PAs (e.g., Lake Arpi National Park, Arevik National Park, Zangezur Sanctuary), development and strengthening the ecological network of Armenia, conservation and restoration of threatened species, mitigation and adaptation of climate change impact on forest ecosystems, introduction of economic mechanisms for alternative livelihood for local communities in order to promote sustainable use of natural resources. WWF Armenia had previously supported the implementation of distinct components under UNDP projects such as the “Improving Capacity Building and Management Regime” of GEF/UNDP project: “Developing the Protected Area System of Armenia” that resulted in a new PA (Khustup Sanctuary) being gazette. Overall WWF Armenia has contributed to an increase of the coverage of PAs coverage from 10% to 13.1%. The WWF country office currently implementing the following projects:

1. Conservation of Leopard in Armenia (USD 258,817).
2. Living landscapes for market development in Armenia (USD 4,795,665).
3. Promotion of Eco-Corridors in Armenia, phase 2 (USD 4,076,500).
4. Reintroduction of the Caucasian Red Deer in Armenia (USD 429,354).

**249.** In addition to the existing projects, the WWF Armenia country office had successfully managed two similar initiatives recently e.g.: “Promotion of Eco-Corridors in Armenia, phase 1” (USD 2,108,160), and “The Transboundary Joint Secretariat 3rd Phase” (USD 1,182,088). In addition to previous partnerships with the government authorities including with the Ministry of Environment, WWF Armenia has a rich experience in working with local communities. Due to well established partnerships in six communities in three southern regions of Armenia, the recently created Community Conserved Areas (CCAs) are covering more than 35,000 ha. Today all CCAs are managed by relevant CBOs. These agreements represent the first innovative approaches that involve local communities in the monitoring and protection of globally important habitats and species e.g. Leopard, Mouflon, Bezoar Goat, Brown Bear in CCAs, introduced by WWF Armenia through its eco-corridor project.

**250.** The HACT and PCAT have both highlighted that adequate capacity exists within WWF Armenia to implement agreed outputs of the project. The departments involved in project management are *Conservation* and *F&A* including a number of technical staff involved in projects. Following the HACT micro assessment recommendations, WWF Armenia has hired additional financial accounting staff to ensure sufficient accounting capacity and segregation of duties under internal financial flow. In its capacity as Responsible Party, WWF Armenia will be involved in the execution of the project and therefore it cannot be part of the Project Board in order to avoid conflict of interest.

**251.** UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes overseeing project execution undertaken by the Implementing Partner to ensure that the project is being carried out in accordance with UNDP and GEF policies and procedures and the standards and provisions outlined in the Delegation of Authority (DOA) letter for this project. **The UNDP- BPPS Executive Coordinator, in consultation with UNDP Bureau and the Implementing Partner, retains the right to revoke the project DOA, suspend or cancel this GEF project.** UNDP is responsible for the Project Assurance function in the project governance structure and presents to the Project Board and attends Project Board meetings as a non-voting member.

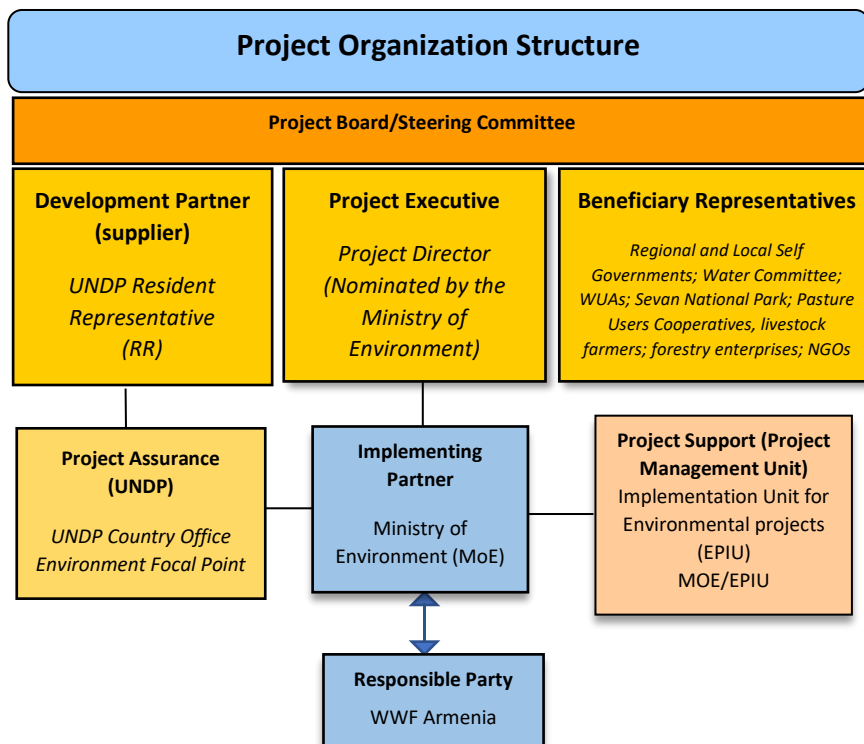
Project stakeholders and target groups:

**252.** The participation and contribution of stakeholders and key target groups are critical for the success of the project, for stakeholders at both the national and local levels. The project applies participatory approaches to ensure government ownership and full stakeholder engagement under each project component. The Project Board or Steering Committee involves be constituted such as to ensure broad representation of all key interests throughout the project's implementation involving UNDP's long-standing partners such as the Ministry of Environment, Ministry of Economy, Ministry of Territorial Administration, Academy of Science and other partners. The project team will further establish and maintain the project partnerships. To secure their participation the stakeholders will be contacted and engaged with, using different strategies and methods that best suit their contributions and interests in the project.

**253.** The project will support the establishment of **Local Advisory Groups (LAG)** to facilitate stakeholders' consultations in each of the selected 6 communities to provide inputs to, and endorsement of the technical solutions proposed for implementation of activities and for the quality of the project outputs. These groups will be composed of community municipality representative responsible for Agriculture and Environment, Pasture Management Cooperative, large and small farmers, private sector/private entrepreneurs, academic/educational institutions, representatives of target communities, civil society and school representatives to provide guidance and technical advice on the project initiatives. The members of these groups will be informed and consulted as needed on all planned measures, on impacts and expected outcomes at community level.

## Section 2: Project governance structure

254. The proposed project governance is presented below:



### Second line of defense

- Regional Bureau oversees RR and Country Office Compliance compliance at portfolio level
- BPPS RTA oversees technical quality assurance and GEF compliance. BBPS NCE PTA oversees RTA function.
- UNDP GEF Executive Coordinator and Regional Bureau Deputy Director can revoke DOA/cancel/suspend project or provide enhanced oversight

255. The UNDP Resident Representative (RR) assumes full responsibility and accountability for oversight and quality assurance of this Project and ensures its timely implementation in compliance with the GEF-specific requirements and UNDP's Program and Operations Policies and Procedures (POPP), its Financial Regulations and Rules and Internal Control Framework. A representative of the UNDP Country Office will assume the assurance role and will present assurance findings to the Project Board, and therefore attends Project Board meetings as a non-voting member.

### Section 3: Segregation of duties and firewalls vis-à-vis UNDP representation on the project board:

256. As noted in the [Minimum Fiduciary Standards for GEF Partner Agencies](#), in cases where a GEF Partner Agency (i.e. UNDP) carries out both implementation oversight and execution of a project, the GEF Partner Agency (i.e. UNDP) must separate its project implementation oversight and execution duties, and describe in the relevant project document a: 1) Satisfactory institutional arrangement for the separation of implementation oversight and executing functions in different departments of the GEF Partner Agency; and 2) Clear lines of responsibility, reporting and accountability within the GEF Partner Agency between the project implementation oversight and execution functions. In this case, UNDP is only performing an implementation oversight role in the project vis-à-vis UNDP's role in the project board and in the project assurance function and therefore a full separation of project implementation oversight and execution duties has been assured.

### Section 4: Roles and Responsibilities of the Project Organization Structure:

257. **Project Board:** All UNDP projects must be governed by a multi-stakeholder board or committee established to review performance based on monitoring and evaluation, and implementation issues to ensure quality delivery of results. The Project Board (also called the Project Steering Committee) is the most senior, dedicated oversight body for a project. The two main (mandatory) roles of the project board are as follows:

- 1) **High-level oversight of the execution of the project by the Implementing Partner** (as explained in the [“Provide Oversight”](#) section of the POPP). This is the primary function of the project board and includes annual (and as-needed) assessments of any major risks to the project, and decisions/agreements on any management actions or remedial measures to address them effectively. The Project Board reviews evidence of project performance based on monitoring, evaluation and reporting, including progress reports, evaluations, risk logs and the combined delivery report. The Project Board is responsible for taking corrective action as needed to ensure the project achieves the desired results.
- 2) **Approval of strategic project execution decisions of the Implementing Partner** with a view to assess and manage risks, monitor and ensure the overall achievement of projected results and impacts and ensure long term sustainability of project execution decisions of the Implementing Partner (as explained in the [“Manage Change”](#) section of the POPP).

**258. Requirements to serve on the Project Board:** *(to be included in the TOR of the Project Board)*

- ✓ Agree to the Terms of Reference of the Board and the rules on protocols, quorum and minuting.
- ✓ Meet annually; at least once.
- ✓ Disclose any conflict of interest in performing the functions of a Project Board member and take all measures to avoid any real or perceived conflicts of interest. This disclosure must be documented and kept on record by UNDP.
- ✓ Discharge the functions of the Project Board in accordance with UNDP policies and procedures.
- ✓ Ensure the highest levels of transparency and ensure Project Board meeting minutes are recorded and shared with project stakeholders.

**259. Responsibilities of the Project Board:** *(to be included in the TOR of the Project Board)*

- ✓ Consensus decision making:
  - The project board provides overall guidance and direction to the project, ensuring it remains within any specified constraints, and providing overall oversight of the project implementation.
  - Review project performance based on monitoring, evaluation and reporting, including progress reports, risk logs and the combined delivery report.
  - The project board is responsible for making management decisions by consensus.
  - In order to ensure UNDP’s ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.
  - In case consensus cannot be reached within the Board, the UNDP representative on the board will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.
- ✓ Oversee project execution:
  - Agree on project manager’s tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the project manager’s tolerances are exceeded.
  - Appraise annual work plans prepared by the Implementing Partner for the Project; review combined delivery reports prior to certification by the implementing partner.
  - Address any high-level project issues as raised by the project manager and project assurance;
  - Advise on major and minor amendments to the project within the parameters set by UNDP and the donor and refer such proposed major and minor amendments to the UNDP BPPS Executive Coordinator (and the GEF, as required by GEF policies);
  - Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily and according to plans.
  - Track and monitor co-financed activities and realisation of co-financing amounts of this project.
  - Approve the Inception Report, GEF annual project implementation reports, mid-term review and terminal evaluation reports.
  - Ensure commitment of human resources to support project implementation, arbitrating any issues within the project.

- ✓ Risk Management:
  - Provide guidance on evolving or materialized project risks and agree on possible mitigation and management actions to address specific risks.
  - Review and update the project risk register and associated management plans based on the information prepared by the Implementing Partner. This includes risks related that can be directly managed by this project, as well as contextual risks that may affect project delivery or continued UNDP compliance and reputation but are outside of the control of the project. For example, social and environmental risks associated with co-financed activities or activities taking place in the project's area of influence that have implications for the project.
  - Address project-level grievances.
- ✓ Coordination:
  - Ensure coordination between various donor and government-funded projects and programmes.
  - Ensure coordination with various government agencies and their participation in project activities.

**260. Composition of the Project Board:** The composition of the Project Board must include individuals assigned to the following three roles:

- **Project Executive:** This is an individual who represents ownership of the project and chairs (or co-chairs) the Project Board. The Executive usually is the senior national counterpart for nationally implemented projects (typically from the same entity as the Implementing Partner). In exceptional cases, two individuals from different entities can co-share this role and/or co-chair the Project Board. If the project executive co-chairs the project board with representatives of another category, it typically does so with a development partner representative. The Project Executive is the Ministry of Environment (MoE).
- **Beneficiary Representative(s):** Individuals or groups representing the interests of those groups of stakeholders who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often representatives from civil society, industry associations, or other government entities benefiting from the project can fulfil this role. There can be multiple beneficiary representatives in a Project Board. The Beneficiary representatives are: The Regional and Local Self Government, Water Users Associations; Sevan National Park; Pasture Users Cooperatives; livestock farmers; forestry enterprises; NGOs.
- **Development Partner(s):** Individuals or groups representing the interests of the parties concerned that provide funding, strategic guidance and/or technical expertise to the project. The Development Partners are UNDP Resident Representatives/or Deputy Resident Representative; Ministry of Economy; Ministry of Environment Ministry of Territorial Administration and Infrastructure; Academy of Science. As noted, Responsible Party representative cannot serve in the Board, in order to avoid conflict of interest.

**261. A) Project Assurance:** Project assurance is the responsibility of each project board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board (and Project Management Unit) by carrying out objective and independent project oversight and monitoring functions, including compliance with the risk management and social and environmental standards of UNDP. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. Project assurance is totally independent of project execution. A designated representative of UNDP playing the project assurance role is expected to attend all board meetings and support board processes as a non-voting representative. It should be noted that while in certain cases UNDP's project assurance role across the project may encompass activities happening at several levels (e.g., global, regional), at least one UNDP representative playing that function must, as part of their duties, specifically attend board meeting and provide board members with the required documentation required to perform their duties. The UNDP representative playing the main project assurance function is UNDP CO Programme analyst/ Team Leader for Climate, Nature, Energy.

**262. B) Project Management – Execution of the Project:** The Project Manager (PM) (also called project coordinator) is the senior most representative of the Project Management Unit (PMU) and is responsible for the overall day-to-day management of the project on behalf of the Implementing Partner, including the mobilization of all project inputs, supervision over project staff, responsible parties, consultants and sub-contractors. The project manager typically presents key deliverables and documents to the board for their review and approval, including progress reports, annual work plans, adjustments to tolerance levels and risk registers. Roles and responsibilities of the PMU members are detailed in Annex 7, noting that the PMU cannot be located in the

UNDP Country Office. A designated representative of the PMU is expected to attend all board meetings and support board processes as a non-voting representative.

**263. Project Management Unit:** Project management services including safeguards monitoring will be delivered by the Project Management Unit (PMU), hosted by EPIU under the Ministry of Environment's mandate, and staffed as follows:

- The Project Manager (PM) will be part of the PMU hosted by EPIU and has the authority to run the project on behalf of the Implementing Partner and will attend the Project Board meetings to report on project progress and strategic directions. The Project Manager is responsible for day-to-day management and decision-making for the project, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager will oversee implementation of environmental and social safeguards and SESP updates, raising awareness about project-level Grievance and Redress Mechanism (GRM).
- The Project Manager will be supported by a Project Financial and Administrative Assistant and a Project Procurement Assistant, who will assist in project planning, revisions and budget execution documents, contracting of national / local, international consultants and all project staff, contract monitoring in accordance with national legislation requirements and consistent with UNDP procedures (UNDP POPP). In addition, there will be three Task Leaders supporting the technical components (Components 1,2 and 3), Senior Communication and KM consultants (Component 4), an M&E expert (Component 5) who will provide technical support services on the project and monitoring of safeguards. The project's gender and SESP experts will implement the Gender Action Plan and will monitor the safeguards and risk management measures respectively. The Project manager will be further supported by short term technical national experts, research institutes and NGOs. (Project Document Annex 7: *Overview of Project Staff and Technical consultancies*).



## VIII. FINANCIAL PLANNING AND MANAGEMENT

**264.** The total cost of the project is USD 33,300,394. This is financed through a GEF grant of USD 3,598,631 and USD 100,000 in cash co-financing (TRAC) to be administered by UNDP as well as USD 29,601,763 other co-financing. UNDP, as the GEF Implementing Agency, is responsible for the oversight of the GEF resources and the cash co-financing transferred to UNDP bank account only.

**265. Co-financing:** The actual realization of project co-financing amounts will be monitored by the UNDP Country Office and the PMU on an annual basis in the GEF PIF and will be reported to the GEF during the *mid-term review* and terminal evaluation process as follows:

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount (\$)
Recipient Country Government	Ministry of Environment	Public Investment	Investment mobilized	17,284,036
Recipient Country Government	Ministry of Environment	In-kind	Recurrent expenditures	6,591,727
GEF Agency	UNDP	Grant	Investment mobilized	3,031,000
Recipient Country Government	Ministry of Economy	Public Investment	Investment mobilized	2,000,000
Non-Governmental Organization	WWF Armenia	Grant	Investment mobilized	525,000
Non-Governmental Organization	WWF Armenia	In-kind	Recurrent expenditures	170,000
GEF Agency	UNDP - TRAC	Grant	Investment mobilized	100,000
<b>Total Co-financing</b>				<b>29,701,763</b>

**266. Budget Revision and Tolerance:** As per UNDP POPP, the project board may agree with the project manager on a tolerance level for each detailed plan under the overall multi-year workplan. The agreed tolerance should be written in the project document or approved project board meeting minutes. It should normally not exceed 10 percent of the agreed annual budget at the activity level, but within the overall approved multi-year workplan at the activity level. Within the agreed tolerances, the project manager can operate without intervention from the project board. Restrictions apply as follows. Should the following deviations occur, the Project Manager/IP through UNDP Country Office will seek the approval of the BPPS/ IRH Environment team to ensure accurate reporting to the GEF. It is **strongly encouraged** to maintain the expenditures within the approved budget at the budgetary account and at the component level:

- a) Budget reallocations must prove that the suggested changes in the budget will not lead to material changes in the results to be achieved by the project. A strong justification is required and will be approved on an exceptional basis. Budget re-allocations among the components (including PMC) of the approved Total Budget and Work Plans (TBWP) that represent a value greater than 10% of the total GEF grant.
- b) Introduction of new outputs/activities (i.e., budget items) that were not part of the agreed project document and TBWP that represent a value greater than 5% of the total GEF grant. The new budget items must be eligible as per the [GEF and UNDP policies](#).
- c) Project management cost (PMC): budget under PMC component is capped and cannot be increased.

**267.** UNDP is not in a position to increase the total budget above the amount approved by the donor, therefore any over-expenditure would have to be absorbed from non-GEF resources by the Implementing Partner (GEF Executing Entity).

**268. Project extensions:** The UNDP-BPPS-NCE team Executive Coordinator must approve all requests for extension of the Project Completion Date and for other milestone extensions with hard deadlines. All extensions impose additional time and cost burdens at all levels and the GEF project budget cannot be increased beyond its originally approved amount. A single extension may be granted on an exceptional basis and subject to the conditions and maximum durations set out in the UNDP POPP. The project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs shall be covered by non-GEF resources; the additional UNDP oversight costs during the extension period must be covered by non-GEF resources, in accordance with UNDP's policy as set out in UNDP POPP.

For any extension request, UNDP CO and IP will consult and jointly present a clear plan indicating how and from which specific sources the additional oversight costs that will be incurred by UNDP will be covered during the extended period. The BPPS-NCE Executive Coordinator will consult the Regional Bureaux (RBX) and may reject the extension request if no (external co-financing by the IP or internal UNDP CO resources) can be identified.

All extension requests, along with all supporting documentation, shall be submitted by the IP to the UNDP CO in line with the requirements and within the deadlines set out in the UNDP SOPs and policies in UNDP POPP.

**269. Audit:** The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop. The IP shall coordinate the audit process with UNDP throughout all its stages.

**270. Transfer or disposal of assets:** In consultation with the Implementing Partner and other parties of the project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project, however, **must be done before the operational closure date**. In all cases of transfer, a transfer document must be prepared and kept on file<sup>54</sup>. The transfer should be done before Project Management Unit complete their assignments.

**271. Completion Date:** The project completion date is the date of Project Document Signature plus project duration. This date can only be extended through a formal extension request. Prior to completion date, all UNDP-financed inputs must be provided and related activities for the Project completed. No activities, except for the final clearance of the Terminal Evaluation Report and the corresponding management response and the end-of-project review Project Board Meeting should take place after the Completion Date.

**272. Project Closure:** Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. All costs incurred to close the project must be included in the project closure budget and reported as final project commitments presented to the Project Board during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

**273. Operational Closure: Operational closure must happen within 9 months from project completion date.** Prior to operational closure, the Terminal Evaluation must have been submitted and the corresponding TE management response and the end-of-project review Project Board meeting must have been completed. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. Before Operational Closure, the project must have completed the transfer or disposal of any equipment that is still the property of UNDP.

**274. Financial Closure: Financial closure must happen within 6 months of operational closure or after the date of cancellation.** The project will be financially closed when the following conditions have been met: a) the project is operationally completed or has been cancelled; b) the Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure

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<sup>54</sup> See <https://popp.undp.org/> <https://popp-prod.acquia.undp.org/policy-page/close-and-transition>.

documents including confirmation of final cumulative expenditure and unspent balance to BPPS/NCE for confirmation before the project will be financially closed in Quantum by the UNDP Country Office.

**275. Cancellation and Suspension:** All projects considering going through cancellation or suspension must follow UNDP and GEF requirements. Guidance can be found in the UNDP POPP ([SOPs for management actions of Vertical Fund projects escalated to the Executive Coordinator](#) and [Guidance for GEF project revisions](#)).

**276. Refund to GEF:** Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the BPPS/NCE team Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GEF. Unspent project balance is not permitted to be transferred to any other projects.

## IX. TOTAL BUDGET AND WORK PLAN

Quantum Award ID:	1145260	Quantum Project ID:	00123413
Quantum Award Title:	PIMS-6586 Full-Sized Project-Lake Sevan-UNDP-ARM-00123413		
Quantum Business Unit	UNDP-ARM		
Quantum Primary Output Project Title as in Quantum:	PIMS-6586 Full-Sized Project-Lake Sevan-UNDP-ARM-00123413		
UNDP-GEF PIMS No.	6586		
Implementing Partner	Ministry of Environment		
Responsible Partner	WWF Armenia (World Wide Fund for Nature)		

### Summary of funds:

Total Project financing	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total
<b>GEF</b>	417,675	1,279,543	1,182,300	465,675	253,438	3,598,631
<b>UNDP-TRAC</b>	23,900	23,400	17,900	17,400	17,400	100,000
<b>UNDP (grant)</b>	600,000	800,000	1,000,000	600,000	31,000	3,031,000
<b>Ministry of Environment</b>	6,000,000	5,000,000	3,000,000	5,000,000	4,875,763	23,875,763
<b>Ministry of Economy</b>	100,000	200,000	1,000,000	700,000	0	2,000,000
<b>WWF Armenia</b>	100,000	200,000	200,000	100,000	95,000	695,000
<b>TOTAL</b>	<b>7,241,575</b>	<b>7,502,943</b>	<b>6,400,200</b>	<b>6,883,075</b>	<b>5,272,601</b>	<b>33,300,394</b>

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## X. LEGAL CONTEXT

**277.** This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement (SBAA) between the Government of Armenia and UNDP, signed on April 1993. All references in the SBAA to “Executing Agency” shall be deemed to refer to “Implementing Partner.”

**278.** This project will be implemented by the Ministry of Environment (“Implementing Partner”) in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

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## XI. RISK MANAGEMENT

**279.** Consistent with the Article III of the SBAA *[or the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

- a) put in place an appropriate security plan and maintain the security plan, considering the security situation in the country where the project is being carried.
- b) assume all risks and liabilities related to the Implementing Partner’s security, and the full implementation of the security plan.

**280.** UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner’s obligations under this Project Document.

**281.** The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via [http://www.un.org/sc/committees/1267/aq\\_sanctions\\_list.shtml](http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml).

**282.** The Implementing Partner acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the Implementing Partner, and each of its responsible parties, their respective sub-recipients and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.

(a) In the implementation of the activities under this Project Document, the Implementing Partner, and each of its sub-parties referred to above, shall comply with the standards of conduct set forth in the Secretary General’s Bulletin ST/SGB/2003/13 of 9 October 2003, concerning “Special measures for protection from sexual exploitation and sexual abuse” (“SEA”).

(b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, the Implementing Partner, and each of its sub-parties referred to above, shall not engage in any form of sexual harassment (“SH”). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment. SH may occur in the workplace or in connection with work. While typically involving a pattern of conduct, SH may take the form of a single incident. In assessing the reasonableness of expectations or perceptions, the perspective of the person who is the target of the conduct shall be considered.

**283.** a) In the performance of the activities under this Project Document, the Implementing Partner shall (with respect to its own activities) and shall require from its sub-parties referred to in paragraph 4 (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, the Implementing Partner will and will require that such sub-parties will take all appropriate measures to:

- i. Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;
- ii. Offer employees and associated personnel training on prevention and response to SH and SEA, where the Implementing Partner and its sub-parties referred to in paragraph 4 have not put in place its own training regarding the prevention of SH and SEA, the Implementing Partner and its sub-parties may use the training material available at UNDP;
- iii. Report and monitor allegations of SH and SEA of which the Implementing Partner and its sub-parties referred to in paragraph 4 have been informed or have otherwise become aware, and status thereof;
- iv. Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and
- v. Promptly and confidentially record and investigate any allegations credible enough to warrant an investigation of SH or SEA. The Implementing Partner shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties referred to in paragraph 4 with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the Implementing Partner shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.

b) The Implementing Partner shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the Implementing Partner, and each of its sub-parties referred to in paragraph 4, to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.

**284.** Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-srm>).

**285.** The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

**286.** All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

**287.** The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds.

**288.** In the implementation of the activities under this Project Document, UNDP places reasonable reliance upon the Implementing Partner for it to apply its laws, regulations and processes, and applicable international

laws regarding anti money laundering and countering the financing of terrorism, to ensure consistency with the principles of then in force the UNDP Anti-Money Laundering and Countering the Financing of Terrorism Policy.

**289.** The Implementing Partner will ensure that its financial management, anti-corruption, anti-fraud and anti-money laundering and countering the financing of terrorism policies are in place and enforced for all funding received from or through UNDP.

**290.** The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at [www.undp.org](http://www.undp.org).

**291.** In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes in accordance with UNDP's regulations, rules, policies and procedures. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner's (and its consultants', responsible parties', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.

**292.** The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

**293.** Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

**294.** UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

**295.** Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

**296.** *Note:* The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

**297.** Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

**298.** Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

**299.** The Implementing Partner shall ensure that all of its obligations set forth under this section entitled “Risk Management” are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled “Risk Management Standard Clauses” are included, *mutatis mutandis*, in all sub-contracts or sub-agreements entered into further to this Project Document.



## MANDATORY ANNEXES

### Annex 1: GEF Budget Template

Expenditure Category	Detailed Description	Component (USD eq.)							Total (USD eq.)	Responsible Entity  (Executing Entity receiving funds from the GEF Agency) [1]
		Component 1	Component 2	Component 3	Component 4	Sub-Total	M&E	PMC		
		Sub-component 1.1	Sub-component 2.1	Sub-component 3.1	Sub-component 4.1					
Equipment	Includes costs of i) PA demarcation and information boards for the eco-tourism routes. Total cost: \$5,000; (ii) support to the 5 local communities who have committed to the Conservation Agreements (Output 2.2.1), for alternative non-livestock livelihoods aligned with LDN and biodiversity-sensitive in a non-cash form. Total cost: \$35,000.		40,000				40,000		40,000	NIM / RP (WWF Armenia)
Equipment	Includes costs of IT equipment for PA and training activities. Total cost: \$30,000		30,000				30,000		30,000	NIM / RP (WWF Armenia)
Equipment	Includes: (i) Cell phone contracts and calls costs of the Task leader in support of Outcome 2 and Output 3.1.4 (under RP execution). Total cost: \$7,500.		7,500				7,500		7,500	NIM / RP (WWF Armenia)
Equipment	Cost of: (i) materials and goods (e.g. grass seed stock, fencing materials, fertilizer, fodder, gabions, etc.) to support the rehabilitation/restoration of degraded pastures on demonstration plots of the communal pasture areas under the management of the local authorities Output 3.1.1. Total cost: \$45,000 (ii) materials and goods for tree nurseries with native species (seeds, fencing materials, fertilizer, pruning shears, root stock, etc.) under Output 3.1.3. Total cost: \$45,000.			90,000			90,000		90,000	NIM / IP (MoE/EPIU) + RP (WWF Armenia)
Equipment	Includes: costs of video conference camera: loudspeaker, projector, and projector screen to support Zoom meetings. Total cost: \$8,000.				8,000		8,000		8,000	NIM / IP (MoE/EPIU)
Equipment	(i) cost of landlines and cell phones for Project manager, Project assistants; (ii) Costs of audio-visual equipment for distant work and video conferencing equipment in support of project management distant work (display, microphone and cameras, speakers; conferencing phone; internet connection). Total costs: \$15,000.							15,000	15,000	NIM / IP (MoE/EPIU)
Equipment - vehicle	Includes: (i) costs of field and monitoring and inspection equipment (Output 2.1.1): operational equipment GIS devices and field equipment (binoculars, camera traps, drones; mobile communication devices; GPS navigators, power sources, generators, field uniforms and gear; Total cost: \$188,000; (ii) fire fighting equipment : fire swatters and backpack fire pumps; brush hooks, quick-assemble and collapsible water tanks and weather meters; 10 full sets of protective fire fighting uniforms. Total cost: 70,000 (iii) Flora and Fauna field guides for targeted PA. Total costs: \$9,500;		267,500				267,500		267,500	NIM / RP (WWF Armenia)

<b>Equipment - vehicle</b>	Cost of (i) equipment required to establish native species tree nurseries (spray irrigation, leasing of tractors, planters, sprayers, etc.) (Output 3.1.3). Total cost. \$50,000; (ii) Cost of fire fighting equipment for the Local Self Government and volunteer teams: fire swatters and backpack fire pumps; brush hooks, quick-assemble and collapsible water tanks and weather meters; 10 full sets of protective fire fighting uniforms. Total cost: \$50,000; (iii) Camera, bag, tripod. Total cost: \$4,000; (iv) Equipment to support field works (tent, sleeping bags; polyethylene film; ropes for transects; bags for soil and plant samples; flashlights; water tank (40L); field kitchen utensils). Total cost \$50,000.				154,000			154,000		NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Grants</b>	Includes the cost of grants- project competitive technical investment program for communities in/near PAs/KBAs/IBAs in Lake Sevan Basin Gegharkunik and Vayots Dzor (in the selected communities), under Output 3.1.4. The competitive grant program will support alternative income generation for the communities and will be organized such that local-level stakeholders from all the targeted communities will submit proposals for technical assistance, which will be reviewed through an objective panel of technical experts. Upon selection, the project will provide granted technical assistance in the form of equipment, materials requested to support sustainable non-livestock-based livelihoods that are aligned with land use management plans that mainstream biodiversity. This activity will be carried out in full conformity with the Low Value Grant policy under the UNDP POPP (Output 3.1.4). Total cost: \$300,000.				300,000			300,000		NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Contractual Services – Individual</b>	Includes the sum of: (i) Cost of 10% of the Project manager salary (\$1500/monthx5 years) Total cost \$ 9,000; (ii) Cost of Task Leader Outcome 1 (\$1200/monthx5years). Total cost: \$72,000.; (iii) Cost of local staff to support EPIU field activities under Component 1. Total cost \$ 10,000.	91,000						91,000		NIM / IP (MoE/EPIU)
<b>Contractual Services – Individual</b>	Includes the sum of: (i) Cost of 10% of the Project manager salary (\$1500/monthx5 years) Total cost \$ 9,000; (ii) Cost of Task Leader Outcome 2 (\$1200/monthx5years). Total cost: \$72,000; (iii) Cost of local staff to support EPIU field activities under Component 1. Total cost \$ 10,000.		91,000					91,000		NIM / RP (WWF Armenia)
<b>Contractual Services – Individual</b>	Costs of Innovation Challenge prize (Total cost: \$40,000)		40,000					40,000		NIM / RP (WWF Armenia)
<b>Contractual Services – Individual</b>	Includes the sum of: (i) Cost of 10% of the Project manager salary (\$1500/monthx5 years) Total cost \$ 9,000; (ii) Cost of Task Leader Outcome 3 (\$1200/monthx5years). Total cost: \$72,000 (iii) Cost of local staff to support EPIU field activities under Component 1. Total cost \$ 10,000.				91,000			91,000		NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Contractual Services – Individual</b>	Includes the cost of 10% of the Project manager salary (\$1500/monthx5 years). Total cost \$ 9,000;(iii) Cost of local staff to support EPIU field activities under Component 1. Total cost \$ 10,000.					19,000		19,000		NIM / IP (MoE/EPIU)
<b>Contractual Services – Individual</b>	Includes a) Partial cost (30%) of the Project Manager salary. Total cost: \$27,000 (30% of \$1500/monthx12monthsx5years); b) Full cost of a Project Financial and Administrative Assistant. Total cost: \$48,000 (\$800x12monthsx5years); c) Full cost of Procurement Assistant. Total cost: \$48,000 (\$800x12monthsx5years).							123,000	123,000	NIM / IP (MoE/EPIU)

<b>Contractual Services – Company</b>	<p>(i) Costs of specialized firm to design and deliver targeted training modules of national/regional/ local authorities on integrated and spatial land use planning, ELD concept and use in land use planning, biodiversity sensitive spatial and land use planning (Output 1.1.4). Total cost: \$10,000. (ii) Cost of technical capacity building targeted specifically on the use of the LUP4LDN software (Output 1.1.3). Total cost \$15,000. (ii) Cost of specialized GIS and spatial land use planning firm to develop GIS supported ISLUPs and set up the related data base in the pilot 6 merger/enlarged communities; in addition, the company will deliver trainings to the technical staff of the 6 local authorities on the use of GIS supported maps and data base. Total cost: \$200,000. (iii) Cost of specialized firm to organize an international LDN workshop to share experiences in setting LDN sub-national targets; ISLUPs and SLM measures and using LUP4LDN, including fees of different speakers (Output 1.1.1; 1.1.2). Total cost: \$80,000.</p>	305,000				305,000			305,000	NIM / IP (MoE/EPIU)
<b>Contractual Services – Company</b>	<p>Includes costs of contractual services in support of outputs under Component 2 and Output 3.1.4 that are executed by the RP (WWF Armenia) as follows: a) Specialized firm to develop the Integrated monitoring data base for Lake Sevan National Park (Output 2.1.1). Total cost: \$50,000; (ii) Construction company to set-up 4 observation towers in Sevan National Park (Output 2.1.1) and set up information boards and signs. Total cost: \$45,000; (iii) NGO/consortium to design and deliver targeted training sessions for the PA staff and local communities including financial trainings, proposal writing, and bespoke training sessions on the biodiversity monitoring and conservation measures (including of key indicator species identified by the project) as per the TNA and responding to METT capacity gaps (Output 2.1.1). Total cost: \$15,000; (iv) Consultancy company or NGO/consortium to work with the tourist project technical expert and liaise with tourism operators and develop PPP with the Lake Sevan National Park for the valorization of Ramsar site values/KBAs/IBAs; implement measures to develop eco-tourism in and around PAs and KBAs/IBAs; organize capacity building for local communities on eco-tourism, conduct marketing, hold several seminars with established local eco-tourism entrepreneurs in Gegharkunik and Vayots Dzor communities for sharing good practices etc. Total cost: \$20,000. (v) Specialized company for the execution of assisted juniper forest regeneration in the habitat of the Bezoar goat (under Outcome 2), including technical project and cost of materials (seedlings; fencing). Total cost: \$25,000.; (vi) Specialized safeguards company to assist with site specific assessments s implementation of other safeguards measures aligned with the SESP/ESMF for activities under Output 2.1.1.,2.2.1, 3.1.4. Total cost \$10,000;(vii) Helicopter rental costs to support large scale aerial survey of wild ungulates during inception phase and at end project Total cost: \$20,000;</p>	185,000				185,000			185,000	NIM / RP (WWF Armenia)

<b>Contractual Services – Company</b>	Includes: (i) costs of contractual services of a company to develop sustainable pastures management plans for the local self-government (LSG) and write proposals for the local self-government to be submitted under different Gov funding for the financing of these sustainable pastures management plans (Output 3.1.1). Total cost: \$ 20,000; (ii) costs of contractual services of a company to work with the project’s technical experts and support the new local self-government (LSG) in targeted communities to develop Integrated Water-Land Management Plans and write several proposals for WUAs and LSGs, for the mobilization of funds under State Subvention Programme for irrigation infrastructure repairs (Output 3.1.2). Total cost: \$15,000. (iii) cost of a specialized firm for the construction of 4-5 water wells and shepherd/livestock shelters in the remote pastures areas (Output 3.1.1). Total costs: \$189,468; (iv) cost of specialized firm services to repair the irrigation infrastructure on several farm areas, rehabilitating pilot irrigated land in the targeted villages- Output 3.1.2 (described in Annex 20). Total cost: \$ 350,000 (v) cost of specialized EIA/SEA and SES company services to support implementation of safeguards measures related to construction works on pasture and farm level under Output 3.1.1; 3.1.2; 3.1.3. 3.1.4 Total cost: \$10,000.			584,468		584,468		584,468	NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Contractual Services – Company</b>	Includes the costs of contractual services of a PR/media company for the implementation of the awareness raising campaign and media events (20 awareness raising events; joint events with other UN Agencies; project inception and final conferences; knowledge sharing events; radio-based agricultural extension service). Output 4.1.1.-Awareness. Total cost: \$100,000.; b) Include the cost of specialized capacity development firm to deliver specialized training activities: 10 trainings for pasture users cooperatives (in coordination with the trainings related to the Agri-environmental Payment scheme; and Grants programme under Output 3.1.1); costs of setting up and training of a network of agriculture extension officers; organization of 6 farmers field schools; delivery of 3 trainings for WUAs on integrated-water/land aligned with LDN; delivery of 6 trainings for local regional authorities , and private entrepreneurs, on proposal writing/resource mobilization under different government programmes (in coordination with the trainings and events under Component 3 to avoid overlaps); delivery of training sessions on eco-tourism with showcasing eco-tourism best practices of such initiatives existing in different parts of Armenia(Output 4.1.1). Total cost: \$80,000.				180,000	180,000		180,000	NIM / IP (MoE/EPIU)
<b>International Consultants</b>	Includes: (i) Pro-rata costs (25%) of the International Technical Advisor (\$750/day x 150 days) with technical input across technical Outputs. Total cost \$28,125; (ii) Cost of International LDN Consultant \$750/dayx50 days). Total cost: \$37,500; (iii) Cost of International Land Use Planning Consultant \$750/dayx50 days). Total cost: \$37,500.	103,125				103,125		103,125	NIM / IP (MoE/EPIU)
<b>International Consultants</b>	Includes pro-rata cost of International Technical Advisor. Total cost: \$28,125		28,125			28,125		28,125	NIM / RP (WWF Armenia)
<b>International Consultants</b>	Includes pro-rata cost of International Technical Advisor. Total cost: \$28,125			28,125		28,125		28,125	NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>International Consultants</b>	Includes pro-rata cost of International Technical Advisor. Total cost: \$28,125				28,125	28,125		28,125	NIM / IP (MoE/EPIU)

<b>International Consultants</b>	Includes cost of 2 international GEF project evaluators to support GEF Mid-term and GEF Terminal Evaluation. Total cost: \$42,000 (2x30 days/\$700/day).						42,000		42,000	NIM / IP (MoE/EPIU)
<b>Local Consultants</b>	Contractual appointment of a team of local experts to provide professional, technical and scientific support to activities under Component 1 as follows: a) Land use expert (Output 1.1.1/1.1.2.). Total cost: \$10,000 (100 days/\$100/day); b) GIS Specialist (Output 1.1.1/1.1.2/3.1.1/3.1.2/3.1.3) Total cost: \$30,000 (200 days/\$150/day); c) Soil specialist (Output 1.1.1/1.1.2/3.1.1/3.1.2). Total cost: \$10,000 (100days/\$100/day); d) 2xPastures and Forests experts (Output 1.1.1/1.1.2/3.1.1). Total cost: \$12,000 (2x60 days/\$100/day); e) Irrigation and Crop water requirements Specialist (Output 1.1.1/Act.1.1.2; 3.1.3). Total cost: \$6,000 (60 days/\$100/day); f) Economist/Land degradation Expert (Output 1.1.1/1.1.2). Total costs: \$8,000 (80 days/\$100/day)	76,000				76,000		76,000	NIM / IP (MoE/EPIU)	
<b>Local Consultants</b>	Contractual appointment of a team of local experts to provide professional, technical and scientific support to activities under Component 2 as follows: a) GIS expert for PA work (Output 2.1.1/2.2.1). Total cost: \$18,000 (120days/\$150/day); b) Zoologist (Output 2.1.1/2.2.1/3.1.4). Total cost \$ 16,000 (160 days/\$100/day); c) Ornithologist (Output 2.1.1/2.2.1/3.1.4) Total cost: \$16,000 (160 days/\$100/day); d) Herpetologist (Output 2.1.1/2.2.1/3.1.4). Total cost: \$6,000 (60 days/\$100/day); e) Botanist (Output 2.1.1/2.2.1/3/1/4). Total cost: \$14,000 (140days/\$100/day); f) Forestry expert (Output 2.1.1/2.2.1/3.1.4). Total cost \$ 6,000 (60 days/\$100/day); g) Freshwater ecosystems specialist (Output 2.1.1/2.2.1) Total cost: \$16,000 (160 days/\$100/day); h) Water management specialist (Output 2.1.1). Total cost: \$8,000 (80 days/\$100/day) i) Environmental economist (Output 2.1.2) Total cost: \$10,000 (100 days/\$100/day); j) Ecotourism expert (Output 2.1.1/2.1.2/3.1.4) Total cost: \$8,000 (80 days/\$100/day); k) Capacity dev PA specialist (TNA) (Output 2.1.1). Total cost: \$3,000 (30 days/\$100/day); l) PA inspection and patrolling expert (Output 2.1.1/3.1.4). Total cost: \$ 8,000 (80 days/\$100/day); m) Community outreach specialist (Output 3.1.4) Total cost: \$15,000 (150 days/\$100/day); n) Senior Communication specialist (Component 2+Output 3.1.4) Total cost: \$30,000 (\$ 6,000/year).		174,000			174,000		174,000	NIM / RP (WWF Armenia)	
<b>Local Consultants</b>	Contractual appointment of a team of local experts to provide professional, technical and scientific support to activities under Component 3 as follows: a) 2xPasture agronomist (Output 3.1.1). Total cost: \$ 50,000 (2x250 days x/\$100/day) b) Botanist (Output 3.1.1./3.1.4). Total cost: \$9,000 (90 days/\$100/day); c) Zoologist (Output 3.1.1./3.1.4). Total cost: \$9,000 (90 days/\$100/day); d) Forestry expert (Output 3.1.3/3.1.4). Total cost: \$10,000 (100 days/\$100/day); e) Independent Pasture Management Assessor (Output 3.1.1). Total cost: \$6,000 (60 days/\$100/day); f) Hydrology (Output 3.1.2) Total cost: \$ 12,000 (120 days/\$100/day); g) Irrigation and Crop water requirements expert (Output 3.1.2). Total cost: \$ 10,000 (100 days/\$100/day); h) Environmental economist expert (Output 3.1.4). Total cost: \$4,000 (40 days/\$100/day);			110,000		110,000		110,000	NIM / IP (MoE/EPIU) + RP (WWF Armenia)	
<b>Local Consultants</b>	Includes the costs of a) Senior Communication Specialist. Total cost: \$30,000. b) Senior Knowledge Management expert. Total cost \$24,000;				54,000	54,000		54,000	NIM / IP (MoE/EPIU)	
<b>Local Consultants</b>	Includes: a) costs of local GEB/M&E expert. Total cost: \$50,000 (\$10,000/year); b) costs of two national evaluation experts to support GEF mid-term and terminal evaluations. Total cost: \$4,000.						54,000	54,000	NIM / IP (MoE/EPIU)	

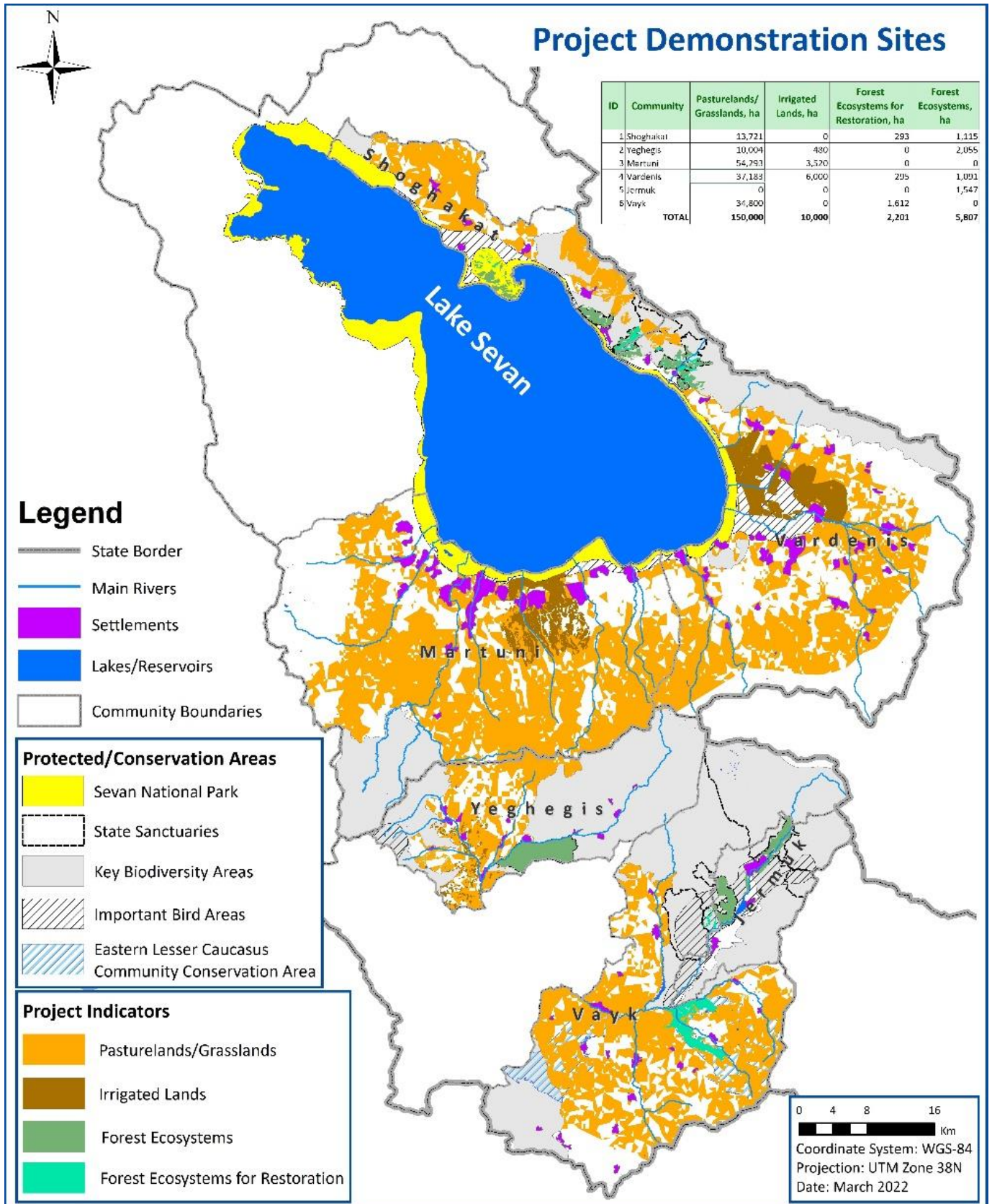
<b>Trainings, Workshops, Meetings</b>	Includes: a) costs of the organization of workshops on LDN and SLM, on the methodology, procedures, LDN monitoring mechanism (Output 1.1.1./1.1.2) and targeted training of regional and local authorities (Output 1.1.4). Total costs: \$12,000 (2 workshops x 6communities x \$1,000); b) costs of local (roundtables and training) on LDN monitoring and reporting to national level. Total cost \$2,000.	14,000				14,000			14,000	NIM / IP (MoE/EPIU)
<b>Trainings, Workshops, Meetings</b>	Includes a) the costs of the organization of the training events for the PAs staff. Total cost: 7,000; and b) costs of round tables and dialogue at local level with the local communities. Total cost: \$9,000.		16,000			16,000			16,000	NIM / RP (WWF Armenia)
<b>Trainings, Workshops, Meetings</b>	Costs with the organization of local workshops and meetings in support of Component 3: (i) training sessions to explain/ assess results under the Agri-environmental payment scheme, benefiting 10 Pasture Users Associations and local authorities and other farmers. Total cost: \$10,000. (ii) 6 training sessions on assisting rural communities to prepare applications for grant funding support; providing agricultural and forestry extension support services to communities' proposal writing (bespoke preparatory meetings led by technical experts for farmers preparations to participate to the project's Grant programme under Output 3.4.1) and coaching on cost-benefit analysis for the farmers participating in the project's grants. Total cost: \$6,000. (iii)costs of the organization of the round table discussions with WUAs and local village residents on the irrigation infrastructure and water efficiency. Total cost: \$2,000. (iii) costs of trainings workshops and round table meetings with the financial sector (banks, micro-credit institutions) to raise awareness on financing nature positive solutions and LDN financing, discuss domestic resource mobilization towards environmentally sensitive agricultural practices and enabling legal and administrative framework- in coordination with UNDP Global Biodiversity Financing Programme (Output 3.1.1); Total cost: \$10,000.			28,000		28,000			28,000	NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Trainings, Workshops, Meetings</b>	Includes costs of awareness raising workshops and local roundtable meetings organized jointly with other donor-funded projects in the targeted areas, and organization of local and national awareness raising events. Total costs: \$ 12,000.				12,000	12,000			12,000	NIM / IP (MoE/EPIU)
<b>Trainings, Workshops, Meetings</b>	Includes costs of inception and final project conferences. Total cost: \$10,000.						10,000		10,000	NIM / IP (MoE/EPIU)
<b>Travel</b>	Includes: a) Travel expenses associated with local field missions of the experts and liaison with local communities in support of outputs under Outcome 1. Total cost: \$12,000 (10 experts x 15 mission days x \$80/day); b) Travel costs (including DSA and transport) of the International LDN expert (Output 1.1/1.2). Total cost: \$8,200 (\$220 x 10 mission days + \$ 6000 cost of flights). c) Travel cost (including DSA and transport) of the International Land use Expert (Output1.2). Total costs \$ 8,200 (\$ 220 x 10 mission days + \$6,000 cost of flights). d) Travel costs of the International Technical Advisor, Project Manager, Task Leader to support implementation of Component 1. Total cost: \$5,000.	33,400				33,400			33,400	NIM / IP (MoE/EPIU)
<b>Travel</b>	Includes a) travel expenses of project experts/staff to targeted areas, in support of collection and processing of data under outcomes 2.1 and 2.2. and Output 3.1.4 Total costs \$22,400 (14 experts and project staffx20 field mission days x\$80/day); b) Travel costs of the International Technical Advisor, Project Manager, Task Leader to support implementation of Component 2. Total cost: \$8,000.		30,400			30,400			30,400	NIM / RP (WWF Armenia)

<b>Travel</b>	Includes travel costs associated with local field missions of the experts and costs of liaison with local communities in support of outputs under Outcome 3. Total cost: \$12,000 (10 experts x 15 mission days x \$80/day); b) Travel costs of the International Technical Advisor, Project Manager, Task Leaders to support implementation of Component 3. Total cost: \$8,000.			20,000		20,000			20,000	NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Travel</b>	Includes travel expenses of to the project sites related to awareness raising events and consultations with the local communities. Total costs: \$7,000.					7,000			7,000	NIM / IP (MoE/EPIU)
<b>Travel</b>	Includes: (i) travel costs and DSA of M&E consultants (M&E) at mid-term and final evaluation. Total cost: \$10,000.							10,000	10,000	NIM / IP (MoE/EPIU)
<b>Travel</b>	Includes travel costs of the PM team (Total cost: \$ 8,000)							8,000	8,000	NIM / IP (MoE/EPIU)
<b>Other Operating Costs</b>	Includes: (i) costs related to the procurement of georeferenced digital aerial photography and satellite imagery. Total cost: \$ 5,000; (ii) costs for production of audio and visual materials to support the development of community-based tourism packages (Output 2.1.2) and community supported eco-corridors (Output 2.2.1). Total costs: \$20,000; (iii) cost of design/printing Lake Sevan National Park Business Plan (Output 2.1.2); Guidelines and Methodology for Mainstreaming Biodiversity in Spatial and Land Use Planning (Output 2.2.1) and other results of assessments of KBAs/IBAs (Output 2.2.1). Total cost: \$5,000.		30,000			30,000			30,000	NIM / RP (WWF Armenia)
<b>Other Operating Costs</b>	Includes: Miscellaneous expenses including bank charges. Total cost: \$2,500		2,500			2,500			2,500	NIM / RP (WWF Armenia)
<b>Other Operating Costs</b>	Includes: (i) Costs of procurement of georeferenced digital aerial photography and satellite imagery. Total cost: \$5,000; (ii) Design, layout and/or printing costs of Manuals, Guidelines, Technical methodologies, Brochures on sustainable pasture and forests management planning, aligned with LDN, for farmers. Total cost: \$10,000.			15,000		15,000			15,000	NIM / IP (MoE/EPIU) + RP (WWF Armenia)
<b>Other Operating Costs</b>	Includes a) the costs of production, design and printing of the following KM products : (i)Manual on LDN compatible and biodiversity friendly integrated spatial land use planning for climate resilient ecosystems and livelihoods; ii) Technical assessments of biodiversity outside PAs and conservation measures for increasing ecosystems connectivity; (iii) Recommendations for behaviorally-informed public policies for a wider uptake of SLM measures and advance towards Land degradation Neutrality in Lake Sevan Basin. Total cost. \$18,000				18,000	18,000			18,000	NIM / IP (MoE/EPIU)
<b>Other Operating Costs</b>	Includes costs of professional services for NIM audits. Total cost: \$25,363							25,363	25,363	NIM / IP (MoE/EPIU)
<b>Grand Total</b>		<b>622,525</b>	<b>942,025</b>	<b>1,420,593</b>	<b>326,125</b>	<b>3,311,268</b>	<b>116,000</b>	<b>171,363</b>	<b>3,598,631</b>	

## Annex 2: PCAT/HACT capacity micro-assessments

(Please see separate reports)





## Annex 4: Multi Year Work Plan

	Outcomes	Outputs	Year 1				Year 2				Year 3				Year 4				Year 5				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
1	Outcome 1.1.	<b>Output 1.1.1</b>																					
		Setting the Baseline: (i) Stakeholders engagement and (ii) Setting the Land Degradation Neutrality baseline (validation of the main LDN indicators)																					
		Establishing a mechanism for neutrality: (i) Assessing land degradation; Identifying drivers of land degradation; (ii) Defining regional voluntary LDN targets.																					
		LDN Planning and Implementation: (i) Mainstreaming LDN in Land Use Planning (ii) Measures to achieve LDN targets																					
		Enable and monitor neutrality: (i) Facilitating actions towards land degradation neutrality (ii) Establishing a mechanism for Monitoring LDN progress (iii) Establishing a mechanism for Reporting LDN benefits; Manual on LDN target setting at region level (drafted and approved). Monitoring of LDN starts.																					
		South- South cooperation: Regional LDN workshop																					
		<b>Output 1.1.2</b>																					
		Setting up district level inter-sectorial coordination mechanism: Integrated Spatial and Land Use Planning Committee -and trainings.																					
	Development of a set of methodologies and criteria for the assessment of arable (irrigated and non-irrigated land), ecosystem services and rate and degree of land degradation aligned with LDN principles																						
	Identification of land potential and spatial assignment of appropriate land use types and practices using participatory planning methods																						
	Matching identified functional zones with economic priorities of the settlements																						

	Identification of existing and potential conflicts among different land-users and between land users and ecosystems, and development of measures to mitigate or eliminate such potential or existing conflicts																			
	Development of an LDN compatible GIS based Land Use Concept <sup>55</sup> and its dissemination to relevant government bodies																			
	Development of GIS supported Spatial Integrated Land Use Plans for the targeted communities, based on the methodologies and GIS Land Use Concept and the analyses under the steps above. The software LUP4LDN will be used (if feasible) for the development of the ISLUPs. Trainings on LUP4LDN use.																			
	Assessment of the alignment with LDN principles and lessons learned, summarized to inform the next cycle of land use planning at district and local levels in the targeted areas																			
	A monitoring and enforcement system for the spatial and land use planning will be put in place, providing land inspectors with protocols to monitor LDN compatible ISLUPs																			
	Formal approval of the ISLUPs by regional/local authorities. Implementation starts.																			
	<b>Output 1.1.3</b>																			
	Clarification of the mandates existing region/marz governing structure i.e. the Governor of the respective province who will facilitate the coordination and cross-sectoral policy work for LDN targets and implementation. Ensuring LDN implementation and monitoring is mainstreamed in the mandates under each level.																			
	Mainstreaming LDN/Climate change/Biodiversity dimension in the mandate of the coordination work in Lake Sevan Basin Inter-Sectorial Committee. Work with EU4Sevan project.																			

<sup>55</sup> The LDN compatible GIS based land use concept will include landscape (natural and cultural), soil, wildlife, biome maps. Each map will include categories of importance (high, medium, low value) along with sensitivity analysis. The land use concept will balance development priorities (economic and social) with conservation objectives in the area given the current status of ecosystems (habitat status, degree of degradation and sensitivity, available ecosystem services).

		<b>Output 1.1.4</b>																		
		Brief assessment (questionnaires) of national/regional/local capacities of the government on the specific project themes. Design of the training modules.																		
		Delivery of training activities.																		
2	<b>Outcome 2.1</b>	<b>Output 2.1.1.</b>																		
		Development of the integrate data base and training on the use																		
		Trainings																		
		Upgrading PA infrastructure																		
		Support to wetlands and freshwater habitats restoration activities (1) Assessments (2) Identification of the vulnerable wetlands' areas (3) Support to restoration (technical guidance) for the mobilization of funds for restoration activities.																		
		Conservation measures and monitoring for key species: (1) Assessments of habitats and species (2) Identification of conservation measures (3) Implementation of conservation measures with the PA staff (4) Facilitation of application of international best practices																		
		<b>Output 2.1.2</b>																		
		Development of the PA Business Plan																		
		Targeted trainings																		
		Strengthening tourism trails/PA tourism infrastructure and community outreach																		
		PPPs with tourist operators and setting up sustainable eco-tourism products (valorization of Sevan Ramsar area)																		
		Innovation challenge																		

	<b>Outcome 2.2</b>	<b>Output 2.2.1</b>																		
		Assessment of the status of KBAs/IBAs included in Sevan Basin landscape hosted by the two targeted regions Gegharkunik and Vayots Dzor																		
		Community supported eco-corridors																		
<b>3</b>	<b>Outcome 3.1.</b>	<b>Output 3.1.1.</b>																		
		Setting up a proposed Agri-Environmental Payment Scheme guided by a set of Key Performance Indicators (KPIs), starting with comprehensive pasture resources assessments done by technical experts (for the 10 PUC) and by a specialized firm (for the rest of the pasture areas managed by the local authorities). The timeline includes the steps towards approval/operationalization of the Agri-Environmental Payment Scheme.																		
		Assisting local authorities in the targeted villages/communities (Self Government LSG) to develop/submit project proposals for the mobilization of funds under different national programmes																		
		Assisting the local/regional authorities (Local Self-Government) to mainstream biodiversity-sensitive sustainable pasture and grasslands management within their local development strategies																		
		Trainings of the farmers, local authorities, private entrepreneurs and government officials and private sector representatives including of financial institutions																		
		Development of amendments of regulatory and institutional framework in order to facilitate the setting-up of Local Pasture Committees (part of the Local Self Government)																		
		Elaboration of a new Pasture Management Concept at local level that will be mainstreamed in the local development strategies and adequate budgeting of SLM measures within their local budget exercises																		
		<b>Output 3.1.2</b>																		
		Training of WUAs in the selected areas to develop proposals for the mobilization of the necessary funds for the implementation of the Integrated Water/Land Management																		

		Plans, mobilizing funds from the State programmes (i.e. the Subvention Programme).																			
		Assessments of water use patterns, land degradation and infrastructure status																			
		Development of the Integrated Water/Land Management Plans																			
		Application of best practices in crop rotation and intercropping, agroforestry, drip irrigation (with support from the grant mechanism under Output 3.1.4)																			
		Implementation of the irrigation structure repairs																			
		<b>Output 3.1.3</b>																			
		Assessments of climate change impact, forest degradation patterns and fire hazards																			
		Updating the Hayantar forest management plans. Approval of the plans.																			
		Forest regeneration measures designed and started.																			
		Trainings (including wildfire management)																			
		<b>Output 3.1.4</b>																			
		Trainings on proposal writing																			
		Grants approval																			
		Implementation of activities and monitoring of results																			
4	<b>Outcome 4.1</b>	<b>Output 4.1.1</b>																			
		Implementation of the awareness raising activities (as described in the main text)																			
		Implementation of training activities (as described in the project document's main text)																			
		<b>Output 4.1.2</b>																			
		Undertake a systematization of the project's experience starting at mid-point and knowledge sharing																			
5	<b>Outcome 5.1</b>	<b>Output 5.1.1.</b>																			
		Monitored/evaluated project results and evaluative knowledge incorporated in the project adaptive management																			

## Annex 5: UNDP Social and Environmental Screening Procedure (SESP)

(Please see separate reports)

## Annex 6: UNDP Risk Register

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
1	There is a risk of project delays, related to the proximity of the selected pasture areas located near the eastern border of the Vardenis community in case of new escalation. These areas are part of the Vardenis side of the eco-corridor of the South-East Lesser Caucasus.	Political Operational	L=3 I=3 <b>Moderate</b>  The most recent conflict flare-ups happened mid-September 2022. Due to these events, large pasture areas located in the proximity of the border were abandoned by the residents. As a consequence of these events, all project activities in the field, located in the proximity of the border, were forbidden. Therefore, proximity to the border of selected sites will have an impact on the project progress in case these clashes will continue to erupt.	The project will re-assess the situation of the PPG selected sites at the inception stage. Approximately 30,000 hectares of pastures in Vardenis area may be replaced with similar pasture areas in other communities.  The project manager, UNDP CO and senior UNDP management will continue monitoring the situation at the border and inform the project team, implementing appropriate risk management measures as per the UNDP policies and procedures and UNDP CO corporate risk management instructions.	UNDP RR/ DRR RP/IP Project Board Project manager M&E consultant
2	Conflicting government priorities relating to agricultural production and sustainable land use could lead to limited progress in achieving the project's intended outcomes and limited results in the conservation and restoration of degraded lands, and the protection of critical habitats for the long-term maintenance of ecosystem services necessary to support sustainable livelihoods.	Political,	L=2 I=3 <b>Moderate</b>  Due to historic conflicting priorities among environment and other economy sectors such as agriculture; due to existing policy/regulatory loopholes; and due to the lack of awareness and sufficient information of the decision makers on the negative impact of climate change on natural resources and consequences of unsustainable use of water/land and biodiversity resources, there is a moderate risk that the project strategic outputs will not be formally approved and therefore not implemented.	UNDP CO will organize regular quarterly Strategic Risk Meetings chaired by the RR in order to monitor the progress towards the formal approval of strategic project outputs (such as ISLUPs/Integrated Land Use Plans; Sustainable Water Management Plans; LDN targets and Action Plans; Legal amendments to Pasture Law) and address the risk of not securing the official/formal approval of these strategic outputs- which would impact the progress towards outcomes and strategic objective. In case of such a risk, high level meetings with the national counterparts will be organized by UNDP CO and these high-level discussions will be expected to mitigate the risk and secure political support and formal approval of the project results.  The Risk will be attentively monitored by UNDP and its rating will be changed to High/Critical if needed.  The risk is mitigated through different activities. The project will be closely working with a range of government stakeholders, partners, and resource users and managers and will organize education and awareness events (under Component 4) on the need to manage land and water resources in an integrated and sustainable way that will not deplete soil productivity and will not impact negatively on biodiversity. Through stakeholders'	UNDP RR/ DRR RP/IP Project Board Project manager M&E consultant



				coordination committee meetings (under Component 1/Output 1.1.3) the project will facilitate inter-sectorial stakeholders consultations, expected to raise awareness and knowledge on LDN and integrated land use plans and biodiversity values. In addition, the regional LDN and ILUPs and Sustainable Water Management Plans will create a framework for Sustainable Land Management (SLM) measures and progress towards LDN and a more sustainable water use. Furthermore, the project will work to identify any critical conflicts in government policies and strategies relating to agricultural production that would potentially diminish the potential to achieve the project objective.	
3	The project is very likely to face operational difficulties and delays associated with the new execution modality, being one of the first projects in the country with the full NIM management arrangements.	Operational	L = 2 I = 3 <b>Moderate</b>  Project implementation doesn't meet the GEF standards and project risks cancelation	Although the core capacities of the Implementing Partner are sound, the human resources are limited (enabling environment and technical capacity). Capacity limitations along with the lack of direct experience in direct implementation of large-scale projects call for targeted capacity building (particularly hands-on experience and learning by doing) is considered as the major risk mitigation measure.	Project team, IP, UNDP
4	The project impact on the status of biodiversity and KBAs might be limited by climate change as a direct driver of habitat conversion and biodiversity loss in the country.	Environmental	L = 2 I = 3 <b>Moderate</b>  Loss of valuable biodiversity eliminating project results relevance.	Assessments of climate change effects within the targeted PA and ecosystems in Lake Sevan Basin will be included in the advanced management planning instruments such as the new PA integrated data base including multi-data assessments, to be developed with the project support. Assessment of climate change effects within the targeted regions and PAs and ecosystems will be included in the Integrated Spatial and Land Use Plans (ISLUPs). The project will make sure that the spatial development scenarios are reflective of the climate change threats and impacts, and climate resilience and adaptation solutions are considered within the (i) spatial development priorities for the areas that are vulnerable to and/or affected by climate change effects and (ii) informing the sustainable pastures, forest and water management plans developed for the selected areas in the PA/KBAs vicinity.	IP, RP, Ministry of Environment and subordinated agencies, PA management, project team
5	There is a risk that the sustainable biodiversity finance mechanisms (e.g. Agri-environmental Payment Scheme) and incentives aimed at mainstream biodiversity-friendly sectoral practices will not prove their	Strategic Financial	L = 3 I = 3 <b>Moderate</b>  Invested project funds fail to deliver intended results in the context of biodiversity conservation, mobilization of private sector resources.	In response to this risk, the project will perform a comprehensive cost-benefit analysis of the proposed finance opportunities and continuous advocacy and organization of regular high-level meetings between RR and high-level decision makers for the materialization of the co-financing pledges and for advocating for the institutionalization of Agri-Environmental Payment Scheme to be demonstrated by the projects.  In addition, Armenia will be included in the first cohort of countries under the new Umbrella project on Global Biodiversity Financing (UNDP/GEF). The latter will	IP, RP line ministries, PA management, project team

	desired financial effect, and the financial viability may not be sufficient to upscale those instruments in the long term.			support the identification of new domestic resources streams and will develop a Biodiversity Development Plan. This alone does not secure financing of the Agri-Environmental Payment Scheme; however, it supports the decision makers to make informed decisions and allocations of financing towards nature positive solutions and financing mechanisms.	
6	Project activities involving local/field interventions and close engagement with local communities may inadvertently contribute to the spread of COVID-19.	Environmental Social	L = 3 I = 3 <b>Moderate</b>  Project activities at the local level are based on participatory approaches, and most of the times will include meetings and local consultations. There will be a number of training workshops and awareness events, round table meetings etc.	The risk will be mitigated through SESP, and implementation of adequate safeguards management such as: (i) clear procedures in place in case of COVID19 reinstatement of restrictions, approved during project inception (ii) use of protective equipment, maintaining social distancing and using remote methods of engagement whenever possible (iii) if adequate safeguards cannot be put in place, activities that entail close local communities engagement will be put on hold if necessary, and work programme/budget will be revised as needed. Wherever possible on-line meeting platforms will be used, and travel decreased. All project meetings will be organized mindful of government regulations and health standards and other appropriate safeguards (including those of UNDSS). Under Output 3.1.4 the project will support the development of COVID-19 safe tourism protocols by working with the National Tourism Committee and will apply/test these safety protocols within the tourism itineraries/packages supported by the project.	
7	Project delays due to COVID 19 reinstated restrictions	Operational	L = 2 I = 3 <b>Moderate</b>  The project implementation may be affected by delays, as was the case with other projects, affected by the restrictive measures implemented since the Covid-19 outbreak.	The measures to mitigate any implementation delays that may result due to potential reinstatement of the COVID-19 related restrictions. UNDP issued corporate guidance on "Managing programmes and projects in the age of Covid-19". These guidelines will be included in the Project COVID-19 Response Strategy. This Strategy will be presented and approved at Inception Workshop along with the main health safeguards that will be implemented during the implementation to protect people and environment and prevent the virus spread (i.e. use of masks, social distancing, remote meetings whenever possible; remote field monitoring as much as possible). The risk to the project posed by potential reinstatement of restrictions (travel; lockdown, others) will be mitigated through several steps that could include (but will be not limited to) : (i) Re-assessment of the COVID-19 restrictions on the AWP implementation (ii) Create/activate stakeholders and key project partners Telegram/Zoom group and move all the meetings online (iii) if activities will be delayed a few months but workplan will deliver on time and within budget, no formal revision is needed (iv) if activities cannot be completed on time, workplan will be revisited and budgets revised/ clearance by online Board meetings (v) if local activities and local field staff can continue activities, monitoring will be done remotely (using photos from the field) or through a virtual mechanisms (project will reach out to community leaders and key partners in the field who can ensure that activities will be aligned with the needs and take into account the constraints faced by the community. The project will ensure that adequate	IP, RP line ministries, project team.

				protective gear is handed over to local field staff and community members and that social distancing and other health safeguards are in place. UNDP TRAC unspent balance can be repurposed to COVID-19 in case of <i>force majeure</i> .	
8	There is a risk that the planned partnerships with the private sector partners in the tourism sector will fail to yield the expected benefits. The negative effects of the post-COVID 19 recession may hamper project plans towards private sector engagement, especially for the tourism sector most severely affected by COVID-19 pandemic.	Strategic Financial	L = 2 I = 3 <b>Moderate</b>  Invested project funds fail to deliver intended results in the context of biodiversity conservation, mobilization of private sector resources (Output 2.1.2)	The project will implement capacity building activities to make sure that the targeted tourists' entrepreneurs are able to apply for economic recovery funds in a sustainable manner and are supported to promote eco-tourism products; the technical expertise provided by the project will support the facilitation of PPPs with the Lake Sevan National Park for the low-impact eco-tourism products and valorization of Sevan Ramsar site. Finally, the GEF increment for promotional activities will hopefully become one of the principal risk management measures and will help mitigating the obstacles towards tourism sector business engagement.	IP, RP line ministries, project team.
9	Increased incidence of climate-induced wildfires in targeted project sites may affect project's results in the field.	Environmental	L = 2 I = 3 <b>Moderate</b>  The project implementation may be affected by delays, as was the case with other projects, affected by the restrictive measures implemented since the Covid-19 outbreak	The increasingly dry and arid climate is making forest ecosystems vulnerable to wildfires especially in Vayots Dzor region. An additional risk factor is the negligence of tourists and/or slash and burn agriculture practices. The project has included training and awareness raising at local levels. Strengthening the fire-fighting equipment base and fire-fighting capacities and knowledge of the PA staff and local communities-based volunteers and rapid intervention squads. Project activities include appropriate mitigation such as: development of climate resilient forestry management plans in targeted communities; supporting elaboration of disaster risks reduction planning at community level and establishment of volunteers' teams; tailored awareness and training activities and strengthening firefighting equipment at PA and local communities' levels.	
10	There is potential risk to project implementation due to potential discontent at local level following the local amalgamation process, that may delay project activities.	Operational	L = 2 I = 3 <b>Moderate</b>  The local amalgamation process and the emergence of new enlarged communities have led to some discontent and social unrest in some of the villages/communities selected at the PPG stage to participate in the project activities.	The risk will be addressed by a re-assessment of the local social situation (and potential discontent) upon the inception stage and by IP, RP and UNDP CO facilitated local dialogues in order to ascertain and strengthen the local commitment to participation in the project activities. Further regular project risk assessment will be deployed and will indicate whether there are any prospective changes to any of the selected pilot community status in terms of potential change to their administrative territory, borders and any other legal modifications that may affect project activities.	IP, RP, project team, UNDP CO

<p>11</p> <p>SESP Risk 1</p>	<p>Some project activities such as the Agri-Environmental Payment Scheme and project-supported grants that are at risk of elite capture may discriminate against vulnerable groups (smallholders with less land and capacities) including women and women entrepreneurs and reduce their access to benefits provided through them.</p> <p>(SESP Risk 1)</p>	<p>Environmental Social</p>	<p>L=3 I=3</p> <p><b>Moderate</b></p> <p>Women may be underrepresented, due to ingrained social and cultural norms.</p> <p>Project activities may therefore not fully incorporate or reflect views of women and vulnerable communities and ensure equitable opportunities for their involvement and benefit.</p> <p>Communities located at the border with Azerbaijan in the proximity of Nagorno Karabakh (NK) conflict area have been massively affected by the war. The needs of displaced people, war veterans, wounded, newly disabled and their families, families who lost a breadwinner or productive assets, will need to be prioritized based on principles of humanity, neutrality, impartiality and independence.</p>	<p>The risk is managed through the <b>Environmental and Social Management Framework (ESMF) that has been developed and the project's strategy</b>, which has embedded participatory approaches, balanced representations and meaningful participation of women, youth and local underrepresented groups, ensuring therefore equal opportunities to benefit from project activities. The project will ensure that all stakeholders are adequately consulted, included, especially those families and individuals affected by the recent Nagorno Karabakh (NK) conflict. The Project's working groups, task forces, committees set up under different components will include representatives of local communities including the poorer and most vulnerable representatives. The project's Agri-Environmental Payment Scheme (Output 3.1.1), repair of irrigation network and the project-supported grants (Output 3.1.4) will include adequate socio-economic criteria in accordance with UNDP SES in order to reach out to the poorest representatives of these communities under the project's focus. They will also undergo an SESP. The Project's targeted investments for example in the repairs of the irrigation infrastructure (Output 3.1.2) have been selected during the PPG phase in such a way as to benefit poorest and remote communities who lack access to many local development opportunities.</p> <p>In addition, the project will ensure that competitive low-value grants (Output 3.1.4) will be issued to local entrepreneurs and small and midsize farmers to support them with the implementation of these plans.</p> <p>The <b>Project Results Framework</b> includes several indicators that are reflecting rights based, gender considerations (Indicator 1; Indicator 16; Indicator 17; Indicators 18, Indicator 19, Indicator 20).</p> <p>With respect to gender, a <b>Gender Action Plan (GAP)</b> was developed, with specific activities aimed at mainstreaming gender across the project's outputs. The gender related tasks and responsibilities are embedded within the Gender Expert, Project manager and Project Task leaders and M&amp;E Expert functions. The project will advocate to offer equal opportunities for women and girls to participate in and benefit from the project activities.</p> <p>Engagement of vulnerable groups and other key community stakeholders is detailed in the <b>Comprehensive Stakeholder Engagement Plan</b> and Gender Plan in line with UNDP SES.</p> <p>The project will also develop a Grievance Redress mechanism (GRM) in order to address concerns from all the participating stakeholders including local communities and avoid/minimize risks of retaliation and reprisal against people</p>	<p>IP, RP, project team, UNDP CO</p>

				who may seek information on project activities or express concerns and/or access project level grievances.	
12 SESP Risk 2	Duty bearers - national and local government institutions, responsible for the marzes (regions) and local land use planning do not have adequate technical capacity to plan and enforce in a participatory manner the integrated LDN-compatible land use planning and mainstream biodiversity considerations into local strategies.  (SESP Risk 2)	Environmental Social	L = 3 I = 3  <b>Moderate</b>  Low capacities at regional, municipalities and settlements/village levels are many times resulting in little or no instructions for sustainable and integrated land use planning and sustainable management of pastures and forests and inadequate monitoring.	The <b>Risk is mitigated through the project strategy</b> primarily captured under Outcome 1 (Outputs 1.1.3 and 1.1.4) and Outcome 4. The project includes concrete measures to strengthen and expand the current capabilities of the key institutions responsible for the land use planning, biodiversity management and development planning at region/municipality and local levels in the two targeted Gegharkunik and Vayots Dzor marzes/regions. The project will deliver a series of capacity development events tailored to national and local stakeholders in order to address the main capacity gaps hampering sustainable land use, LDN and biodiversity management. Where relevant, for instance in the area of land-use and planning of natural resources (water, forest and pastures), capacity development interventions (guides, methods training, etc.) shall include components on social and environmental mainstreaming, and stakeholders' involvement, as per national legislation and UNDP SES provisions.  The implementation of the <b>Stakeholders' Engagement Plan</b> and <b>Knowledge Management Plan</b> will ensure the participation in capacity building events that will deliver targeted trainings based on a Training Needs Assessment in order to respond to duty bearers identified capacity gaps. It will encourage women's participation and involvement.	IP, RP, project team, UNDP CO

<p>13</p> <p>SESP Risk 3</p>	<p>The LDN compatible Integrated Land Use Plans, the pastures and forests management plans may lead to short-term or long-term economic displacement.</p> <p>(SESP Risk 3)</p>	<p>Environmental Social</p>	<p>L = 3 I = 4</p> <p><b>Substantial</b></p> <p>Demarcation of new areas that are designated as protected areas or changes in natural resource management requirements in existing areas may lead to restrictions in land use or use of natural resources in those areas and thus result in economic displacement for the local communities, who are primarily located in rural areas with a high percentage of unemployed and poor; women constitute a substantial part of small-holders. There is a risk that these groups will be negatively affected by the restricted availability, quality and access to natural resources.</p>	<p>The risks will be managed through the implementation of <b>Strategic Environmental and Social Assessment (SESA)</b> (please see ESMF/Annex 9 of the Project Document) applied during the preparation of these plans.</p> <p>The project will undertake a <b>SESA</b> that will address this risk during development of the ISLUPs (Output 1.1.2) such that the recommendations of the assessment will be integrated into the plans, as well as the pursuant Pasture Management Plans (Output 3.1.1), Integrated Water-Land Management Plans (Output 3.1.2), and Forest Management Plans (Output 3.1.3). In addition, a <b>Process Framework</b> will also be undertaken during development of ISLUPs. The SESA will be conducted in line with UNDP SES and national legislation. UNDP SES Stakeholders engagement plan and Process Framework shall be aligned with or complement (if needed) the public participation provisions included in the Law on Environmental Impact Assessment and Expert Examination.</p> <p>With respect to gender, the risk is managed by the <b>Gender Action Plan</b>, supporting women (groups) participation in ISLUP design as well as elaboration of gender sensitive plan (considering for instance equal access to land or women’s role in natural resources management sectors associated with ISLUPs.). The project will hire a gender expert that will supervise the implementation of the Gender Action Plan.</p> <p>A project-level <b>Grievance and Redress Mechanism (GRM)</b> will be established and published so that all stakeholders, including remote communities are aware of its existence.</p>	<p>IP, RP, project team, UNDP CO</p>
<p>14</p> <p>SESP Risk 4</p>	<p>Restrictions in access to natural resources or its depletion in legally designated parks and protected areas may affect livelihoods of vulnerable groups.</p> <p>(SESP Risk 4)</p>	<p>Environmental Social</p>	<p>L = 3 I = 3</p> <p><b>Moderate</b></p> <p>Illegal grazing is frequent in the PA areas which aren’t demarcated on-the ground, as in case of “Lichk-Argichi” reserve zone, the “Gilli” and “Artanish” reserve zones, which are regularly grazed by cattle from the villages of Tsovak (2,300 inhabitants) and Geghamasar (1,100 inhabitants), and Shoghakat (1,100 inhabitants) and Artanish (760 inhabitants), respectively. The “Juniper Oak Woodlands” sanctuary is regularly grazed by small cattle from the villages of Jil (680 inhabitants), Tsapatagh (360 inhabitants), Pambak (550 inhabitants) and Daranak (190 inhabitants). Regulatory enforcement alone seems not to be effective. Illegal fishing is even more problematic,</p>	<p>This risk will be mitigated through the <b>Process Framework</b>: during preparation of the pastures, water-land and forests management plans (Outputs 3.1.1, 3.1.2 and 3.1.3) targeting the local communities situated adjacent to the Protected Area and ISLUPs Output 1.1.2 (in cooperation with the Project EU4Sevan) in order to conduct local consultations among different land-users and between land users and ecosystems, by identifying commonly agreed solutions to be included in the respective plans. It shall include provisions and means, including financial, for potential <b>compensation at full replacement costs</b> and other assistance, for the displaced people.</p>	

			<p>it involves approximately thousand people directly involved in fishery (both legal and illegal) and estimated 3-5 thousand people involved in fish business (fish smoking, caning, transportation, sale-resale, exporting).</p> <p>Changes to the resource use and management regimes and improved enforcement could affect the enjoyment of business-as-usual short-term direct benefits to the resource users in the targeted area.</p>		
15 SESP Risk 5	<p>The project-supported water/pastures/forests management plans once implemented, may have a negative impact on the use of natural resources and/or the critical biodiversity habitats and species.</p> <p>(SESP Risk 5)</p>	<p>Environmental Social</p>	<p>L = 3 I = 4 <b>Substantial</b></p> <p>The risks considered here are related to potential inadequate design and implementation of water and SLM measures e.g. although the water management planning will indicate the technology to be used and will recommend SLM practices (such as crop rotation; agroforestry measures) in order to reduce water wastage and improved resource efficiency, there is the risk that these measures will lead to increase of natural resources (e.g. choice of water irrigation technology would lead to increase water consumption); another example would be the inadequate planning for forest regeneration that may harm surrounding nesting/feeding areas of rare or endangered species. The pasture management plans may inadvertently plan for seeding of invasive species, etc.</p> <p>Cumulative risks on biodiversity and natural resources to the area, including the risk associated with increased tourism activities are also expected.</p>	<p>This risk will be managed through implementation of a <b>SESA</b> (please see ESMF/Annex 9 Project Document) applied during the preparation of the ISLUPS (Output 1.1.2) and implementation of the safeguards that are already embedded in these plans (i.e. the site-specific risk management measures that will be identified and included in these plans). The assessments will be undertaken in line with UNDP SES and national legislation.</p> <p>The project will undertake a <b>SESA</b> that will address this risk during development of the ISLUPS (Output 1.1.2) such that the recommendations of the assessment will be integrated into the plans and be integrated into the pursuant Pasture Management Plans (Output 3.1.1), Integrated Water-Land Management Plans (Output 3.1.2), and Forest Management Plans and Forest Management Plans (Output 3.1.3).</p> <p>A high-level targeted assessment will be undertaken for the business plan (Output 2.1.2) to ensure financial flow to the measures that benefit both PA biodiversity and ecosystems and affected communities. All proposed tourism infrastructure activities (expansion of tourist trails, etc.) and activities to be supported by Public – Private partnership will be screened (applying international sustainable tourism standards, in combination with UNDP SES standards for potential social and environmental impacts. Appropriate management measures shall be identified, when needed. The project may consider engaging the expert on sustainable tourism.</p> <p>In addition, a <b>Process Framework</b> will also be undertaken during development of the ISLUPS. The assessment will also examine the cumulative impacts of implementation of the management plans in the project area, and the impacts of the expansion in tourism resulting from implementation of project activities.</p> <p>The project's deployment of qualified specialists (hydrologists, pasture agronomists; conservation biologists engineers, safeguards specialists/company etc.) will ensure that these plans (starting with the design/development phase) will encompass best practices and guidelines and specifications for the most efficient</p>	<p>IP, RP, project team, UNDP CO</p>

				irrigation technology and scientifically supported SLM measures that pose no harm to environment and that cost effective, resource efficient and climate sensitive.	
16 SESP Risk 6	Project-supported LDN compatible SLM measures and biodiversity conservation activities may lead to increased vulnerability of target areas to climate change impacts.  (SESP Risk 6)	Environmental Social	L = 3 I = 3 <b>Moderate</b>  Climate change is affecting Armenia’s natural ecosystems and Lake Sevan landscape is affected by extreme climate events such as drought, hail, floods. Soil erosion and vegetation cover loss are exacerbated by climate change. Project supported activities, especially those related to agricultural development, may lead to changes in land or resources that increase the vulnerability of target areas to climate change.	The management measures will be identified <b>through the SESAs that will be undertaken for the ISLUPs, site-screening and targeted assessment/Environmental and Social Management Plans (ESMPs – as necessary) of demonstration pilots.</b> The various project’s assessments will be informed by the existing climate risk profile/studies (elaborated within the framework of other projects) and through the project’s own land/water and climate risk assessments (Output 2.2.1; Output 3.1.1; 3.1.2; 3.1.3) and shall result in recommended mitigation measures and SE impact related indicators, to be included in the KPI under the pastures management plans, proposed in the project document under this respective Output 3.1.1.  As part of the assessments that will be undertaken for the project-supported plans and pilot demonstrations, climate risks assessments will be included in the preparation of the envisaged plans and SLM measures.  Attention to the current and potential impacts of climate change has been built-in to all aspects of the project. The project’s work will link the climate resilient Integrated Landscape Approach promoted by the project with the Basin Approach (IWRM) promoted by EU funded support to Lake Sevan management, by strengthening the Sevan Committee for intersectoral policy making (Output 1.1.3).  A large a multidisciplinary team of specialists will ensure that the partners and stakeholders will apply the best available climate change forecasts data for Armenia’s Sevan Basin, and will ensure that all project activities and plans take into consideration potential future climate impacts.  The project strategy is anchored by a framework for sustainable management of pasture/grasslands, forests and arable lands as well as biodiversity mainstreaming and biodiversity conservation measures that are grounded by scientific principles and participatory methods mechanisms that will enable stakeholders to adapt sustainable land and pasture management to any given context and threats.	IP, RP, project team, UNDP CO
17 SESP Risk 7	Measures for assisted forest regeneration and improved forest ecosystem management may have unintentional adverse impacts on species or ecosystems.  (SESP Risk 7)	Environmental Social	L = 2 I = 4 <b>Moderate</b>  Under Output 3.1.3 the project will design measures for the sustainable management of 8,000 ha forest ecosystems; of which approx. 2,200 ha will host demonstration activities of forest restoration measures.	The risk will be mitigated through <b>demonstration site screening and targeted assessments/ESMPs</b> (as necessary) conducted prior to the commencement of the reforestation activities (please see ESMF Annex 9). The methodologies and proposed tree species will be validated by project experts, Ministry of Environment and “HayAntar” (ArmForest) Agency.  The project implementation will need to ensure that no supported action: <ul style="list-style-type: none"> <li>• is detrimental to the conservation status of habitats and species, has measurable adverse impacts to critical habitats, or leads to a reduction in endangered species;</li> </ul>	IP, RP, project team, UNDP CO



				<ul style="list-style-type: none"> <li>• increases the vulnerability of the forest ecosystem to the changing climatic conditions,</li> <li>• leads to conversion of natural forests,</li> <li>• introduces known invasive species,</li> <li>• impairing seed quality control</li> </ul> <p>The project preparation included consultations with forestry specialists in order to identify the appropriate restoration measures included in the project strategy, and during the project implementation any measure will be consulted with HayAntar. The project strategy is based on “assisted natural forest regeneration”, management of natural regrowth with minimal impact on the natural ecosystems. The potential need for new trees planting (for patching of missing trees rows) has been identified at the PPG stage and included in the project document. Further screening/assessments will be conducted during the project implementation as needed.</p>	
18 SESP Risk 8	<p>Project workers, including those hired by third party contractors, may be inadvertently exposed to working conditions not in line with international labor standards including those related to child labour and occupational health and safety.</p> <p>(SESP Risk 8)</p>	<p>Environmental Social</p>	<p>L = 3 I = 3 <b>Moderate</b></p> <p>This risk is associated with all project activities that involve recruitment of workers, including construction of observation towers (Output 2.1.1), repairs of the irrigation infrastructure (Output 3.1.2) and project-supported grants (Output 3.1.4).</p> <p>In addition to directly hiring workers for implementation of project activities, the project will support smallholders and small private rural entrepreneurs (small tourism operators; farmers associations) to green their investments and access financing in order to implement local initiatives such as sustainable grasslands management and other alternative income generating activities that will boost their livelihoods.</p> <p>Likelihood of non-observance of UN standards and policies of labor and working conditions especially child labor has been considered based also on some existing reports:</p>	<p>The <b>management measures will be devised on case-by-case basis</b> per the procedures described in the ESMF. The project will ensure that national working standards (Labor Code) are respected for all the project activities. The requirements of this Standard are to be applied in an appropriately scaled manner based on the nature and scale of the sub-project, its specific activities, the project's associated social and environmental risks and impacts, and the type of contractual relationships with project workers.</p> <p>A screening mechanism will be built into the selection process to ensure due diligence is applied for private sector partnerships and businesses being supported by the project to ensure adherence to labour standards (Output 3.1.4).</p> <p>Labour management procedures will be developed (or checked on the availability within contractor policies) to include specific requirements of the terms and conditions of the employment under the project.</p> <p>The Project Manager and UNDP CO will ensure that procedures are established and applied during implementation for managing and monitoring the performance of such third parties in relation to the minimum requirements herein, including incorporation of the minimum requirements into contractual agreements with such third parties, together with appropriate noncompliance remedies. In the case of subcontracting, third parties are required to include equivalent requirements and remedies in their contractual agreements with subcontractors. Please see Guidance at:</p>	<p>IP, RP, project team, UNDP CO</p>

			<a href="https://www.dol.gov/agencies/ilab/resources/reports/child-labor/armenia">https://www.dol.gov/agencies/ilab/resources/reports/child-labor/armenia</a>	<a href="https://info.undp.org/sites/bpps/SES_Toolkit/SES%20Document%20Library/Learning%20Materials/UNDP_S7_Labour%20Guidance%20Note_June2021.pdf">https://info.undp.org/sites/bpps/SES_Toolkit/SES%20Document%20Library/Learning%20Materials/UNDP_S7_Labour%20Guidance%20Note_June2021.pdf</a>	
19 SESP Risk 9	The project may inadvertently contribute to potential perpetuation of discriminations against women. There are lingering disparities between men and women, particularly in rural areas and in the patriarchal cultures of some of the ethnic minority communities, which could be inadvertently replicated or exacerbated. (SESP Risk 9)	Environmental Social	L = 3 I = 3 <b>Moderate</b>  The Project could potentially perpetuate discriminations against women based on gender, especially regarding participation in the implementation of different training activities, support to accessing financing instruments for SLM, or access to other project-supported opportunities. In the targeted regions, women account for around 51-52% of the population. Many women form part of the unpaid family labor in home farming and lease of agricultural lands.	The risk will be mitigated through the implementation of the <b>Gender Action Plan</b> . The Project team will include a gender expert who will support the implementation of the Gender Action Plan. The project activities will consistently mainstream gender sensitive approaches and will create opportunities for tackling women's needs and address the differentiated ways men and women use the natural resources.	IP, RP, project team, UNDP CO
20 SESP Risk 10	The improved PAs capacities for patrolling, stricter application of environmental regulation (due to improved zoning under the new Management Plan) may impinge on the livelihoods of the nearby communities in the project area. (SESP Risk 10)	Environmental Social	L = 3 I = 3 <b>Moderate</b>  The EU4Sevan Project is developing the new Sevan National Park Management Plan. Enhanced protection regime and a better zoning and delineation of on-the-ground of PAs core and buffer areas (supported by the EU4Sevan Project) coupled with increased patrolling (supported by the GEF Project) , may bring along potential risks of restrictions/limitations on the use of natural resources that may be at odd with the current agricultural practices of the local communities in project areas.  Associated with that is the risk that not all key user groups of natural resources at project sites are consulted in project design and implementation and they will be affected by the restrictions on the use of natural resources.	The GEF project will closely coordinate with the EU4Sevan Project in order to mitigate this risk. The risk is mitigated through the <b>Process Framework</b> , to be organized <u>together with the EU4Sevan Project</u> (the latter is developing the Sevan National Park Management Plan), if activities of the two projects can be synchronized during the planned life-time. The GEF Project will support the organization of the Process Framework, and the facilitation of community engagement. The Process Framework for each plan (when needed) will also tackle the potential economic displacement that may be possibly triggered under different GEF project activities (such as the development of the water/forest/pastures management plans for the villages located within the perimeter of the PA).  The project strategy includes key social and environmental and human rights principles, supporting capacity development of the PA rangers and police officers for understanding the local community's rights and promote a collaborative approach. Activities such as human-rights based patrolling/ enforcing the environmental regulations and engagement with local communities will be mainstreamed within the PA management plan, to guide human rights-based measures/actions for PA rangers, aiming at promoting collaborative approaches with local communities.  Strengthening the PA management and control involves and potentially affects wider range of stakeholders with potential conflicting interests (local communities, authorities, PA management staff, rangers, and local police) therefore project will	IP, RP, project team, UNDP CO

				ensure that Stakeholder Engagement Plan and Gender Action Plan will support meaningful stakeholder participation and involve tailored-made engagement modalities.	
21 SESP Risk 11	Potential collaboration with local police and improved enforcement/anti-poaching activities in protected areas may facilitate altercations with local communities and traditional subsistence activities.  (SESP Risk 11)	Environmental Social	L=3 I=3 <b>Moderate</b>  The project could facilitate institutional agreements with local police in order to combat illegal activities such as poaching and illegal logging in the targeted PAs. Enforcement issues of the environmental regulations may lead to conflicts between the PA rangers and the local community.	The risk is mitigated through the <b>project strategy</b> .  Under Output 2.1.1 the dedicated trainings for the PA rangers, local police, “local community caretakers” and environmental inspectors concerning patrolling and application of fines, search and arrest and interaction with local communities, will be aiming at promoting collaborative approaches. The training seminars will have an emphasis on human rights principles (in line with the UNDP SES).  In addition, the project will facilitate regular meetings between the PA managers, rangers/patrolling staff, communities, ecological inspectors, and “community caretakers”, in order to analyse trends in monitoring and legal compliance and collaboratively address ongoing threats.	IP, RP, project team, UNDP CO
22 SESP Risk 12	The project supported demonstration activities may inadvertently cause damage to significant cultural and historical significance sites and/or chance finds.  (SESP Risk 12)	Environmental Social	L = 3 I = 3 <b>Moderate</b>  The targeted municipalities and demonstration sites have been carefully selected. However, given Armenia’s rich cultural heritage the risk is present, and it is assessed as moderate.	The <b>risk is managed through Project Design and ESMF</b> . The project strategy includes several selected areas carefully considered in order to prevent/minimize the chance of affecting cultural heritage sites. However, the SESP will be re-applied before any demonstration activity will commence. Further site-specific screening will be considered for sites that are not fully defined, making sure to include criteria that prevent/minimize the chance of selecting demonstration areas close to any cultural significant site. As stated in the ESMF, if the application of SESP finds it relevant, a standalone <b>Cultural Heritage Management Plan</b> , that includes a chance finds procedure, will be developed and implemented.	IP, RP, project team, UNDP CO
23 SESP Risk 14	Small scale construction associated with the monitoring /observation towers in Sevan National Park, the supported small scale hydrotechnical repairs of the irrigation infrastructure at farm level around KBAs/IBAs and some activities associated with the Agri-Environmental Payment Scheme, may have negative impact on critical habitats and species, community and worker health and safety and	Environmental Social	L = 3 I = 4 <b>Substantial</b>  Under Output 2.1.1 the project will support the construction of observation towers for monitoring of birds and any fire hazards that will enable rapid interventions. There is a limited risk of habitat disturbance at site.  Under the Agri-Environmental Payment Scheme Output 3.1.1, some activities may include conversion of steppe ecosystem to fodder plots, affecting sensitive biodiversity nearby.  Under Output 3.1.3 the project will support several small scale hydrotechnical repairs in the selected villages, which are outside of the PA.	The risk is mitigated by ESMF described SESP and site-screening for the activities under Output 2.1.1 (setting up observation towers), Agri-Environmental Payment Scheme (Output 3.1.1) and small scale on farm hydrotechnical work repairs (Output 3.1.2) and <u>if necessary and indicated by the screening as well as requirements of national EIA legislation</u> , an appropriately scoped ESIA can be commissioned (ESMF Annex 9) for any activity, including infrastructure development/repair in order to identify, prevent and mitigate potential impacts on ecologically sensitive habitats, community health and safety, worker safety and the physical environment. The ESIA’s will be undertaken in line with UNDP SES and national EIA legislation and result in site-specific ESMPs. The risks will be mitigated through the site-specific ESMPs. Where risks cannot be avoided, management measures will be put in place prior to the start of the relevant activities.  The project team (Project Manager and Safeguards/M&E expert) will ensure that the infrastructure development will be designed in an ecologically sensitive manner and apply best practices in low-impact, ecologically sensitive design and construction through implementation of the site-specific ESMP. Moreover, project	IP, RP, project team, UNDP CO

	<p>lead to increased pollution and GHG emissions.</p> <p>(SESP Risk 13)</p>		<p>Some villages are in proximity of KBAs/IBAs however at considerable distance from any observed bird colonies.</p>	<p>infrastructure will be developed/scoped in accordance with specific national legislation and norms.</p> <p>As a precautionary measure, the contractual terms (aligned with the SES requirements) will fully integrate regular step-by-step monitoring of each phase of the construction, and only proceed to the next stage when no harm is confirmed. In case any of the contractor's activities goes off track, the contracts will have a clause for the subcontractor to rectify (on his own account) any deviation from the targeted result that the TOR envisage.</p>	
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## Annex 7: Overview of Project Staff and Technical Consultancies

Consultant Estimated consultancy fee	Estimated duration	Brief account of the proposed Tasks/Outputs
<b>Project Management</b> (Please also see below table B with details Roles and Responsibilities of Project staff)		
<b>Local / National contracting</b>		
Project Manager Rate: \$1500/month	60 months / over 5 years	Tasks: overall management of the project, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors. Leads the Project Management Unit (PMU) and it is responsible for the day-to-day management of the project activities and the delivery of its outputs and partnerships. Supports and reports to the Project Board and coordinates the activities of all partners, staff, and consultants as they relate to the implementation of the project. Develops annual work plans and budget; ToR and action plan of the staff and monitoring reports; quarterly reports and financial reports on the consultant's activities, all stakeholders' work, and progress; yearly PIRs/AWP; adaptive management of project. Monitors the implementation of the SESP and ESMF, ensures that safeguards and risk management measures are implemented and SESP periodically re-assessed.
Project Financial, Administrative Assistant Rate: \$ 800 /month	60 months / over 5 years	Tasks: financial and administrative management of the project activities and assist in the preparation of quarterly and annual work plans and progress reports for review and monitoring by UNDP. Assists in: Planning, preparation, revisions, and budget execution documents; contracts of national / local consultants and all project staff, in accordance with UNDP procedures and observing national legislation requirements; quarterly and yearly project progress reports concerning financial issues.
Project Procurement Assistant Rate: \$ 800/month	60 months / over 5 years	Tasks: Support the development of TORs and conduct all the procurement and contracting under the project, including: advertising and invitation for tendering; organizing bidding meetings; tender openings; selection panels; writing minutes; participate in selection panels and facilitate evaluation of bids/offers/applications; ensure that all supportive documents related to the project procurement/contracting that are submitted for the Project Manager's approval, are prepared according to the AWP and full NIM rules and regulations and aligned with the government procurement rules and regulations.
Project Social and Environmental Safeguards Expert/consultant  Rate: \$ 100/day	150 days/ over 5 years	Tasks (across outputs): Ensures that knowledge generated by the project activities informs SESP periodical review. Monitors progress in implementation of the project ESMF and SESP measures, works with EIA/SEA and safeguards companies ensuring that UNDPs SES policy is fully met and the reporting requirements are fulfilled; Oversee/develop/coordinate implementation of all safeguard related plans; Ensure social and environmental grievances are managed effectively and transparently; Review the SESP annually, and update and revise corresponding risk log; mitigation/management plans as necessary; Ensure full disclosure with concerned stakeholders; Ensure environmental and social risks are identified, avoided, mitigated and managed throughout project implementation; Work with the M&E officer/expert to ensure reporting, monitoring and evaluation fully address the safeguard issues of the project.
Gender expert Rate: \$ 6,000/year	5 years	Tasks (across outputs): Ensures that gender is mainstreamed into all knowledge products across components, and provides advice on gender mainstreaming in project outputs, monitoring of gender mainstreaming. Coordinates the implementation of the Gender Action Plan including working with SESP expert and coordinating gender related activities and safeguards. Provides documentation of gender mainstreaming and assessment of indicators as established in the Gender Action Plan.
<b>Technical Consultancies</b>		
<b>International contracting</b>		
International Technical Advisor	150 days/ over 5 years	Tasks (across components): Provides overall technical strategic advice to the project across components, and technical inputs to the Project Manager, Task Leaders and the team of national and international experts, in support of the realization of the Project Outputs under each component and contributing to the project's adaptive management strategy. Provides strategic technical guidance to the risk monitoring and guides the implementation of ESMF and SESP measures (advising from a

Rate: \$750/day		technical point of view) and by working with the Safeguards/SES company (or experts) to be hired by the project. Writes the Scaling Up and Replication Strategy of the Project (with the support of the other project's specialists and KM and PR experts) to be presented to the Project Board during the project's final conferences.
<b>Component 1: LDN and ISLUPs</b>		
Local / National contracting		
<b>Task Leader Outcome 1/</b> Land management specialist (coordinating the Outputs 1.1.1; 1.1.2; 1.1.3; 1.1.4) \$ 1200/ month	Year 1-5	-Primary Tasks (All outputs under Component 1): Coordinates all activities for the achievement of these outputs. Works together with National and International LDN consultants, soil specialist and land use planning specialist to support LDN baseline identification and LDN targets in the two targeted regions. Provides support to the identification of "LDN hot spots"; delivers assessments and recommendation of measures for improvement of soil fertility in the pastures and forests areas. Estimates and ensures cost-effectiveness of project interventions on the ground (working together with the expert economists).  -Secondary Tasks (Output 3.1.1; 3.1.2; 3.1.3;) Provides advice and support to the Task Leader Component 2 and 3.1.4 and guidance with regard to LDN compatible SLM measures. Provides technical inputs to field missions, reports, studies, TORs etc as necessary.
Land use expert Rate: \$ 100/day	100 days. Year 1- 2	Tasks (Output 1.1.1 and 1.1.2): Provide technical support in the assessments of land degradation and land use planning for the establishment of LDN targets and LDN SLM measures in each land use type. Support the identification and spatial distribution of the main land use types and land cover, and assess trends in land degradation, assist in modelling land use scenarios, define and validate LDN baseline and establish a mechanism for neutrality, targets and monitoring system, provide recommendations for land use decisions to local authorities and provide technical inputs into project's knowledge sharing through the World Overview of Conservation Approaches (WOCAT) support project's multi-stakeholders' engagement during land use planning.
GIS Specialist (Water/Land resources) Rate: 150/day	200 days Year 1-5	Tasks (Output 1.1.1; 1.1.2; 3.1.1;3.1.2;3.1.3;): Working in coordination with Task Leader and other experts and <b>provides the GIS analysis and satellite imagery analysis for the LDN and ISLUPs, pastures, forests and water/land management planning work.</b>
Soil specialist (soil scientist) Rate: \$100/day	100 days/year 1-2	Tasks (Output 1.1.1; 1.1.2; 3.1.1; 3.1.2) Supports the setting up of LDN targets and advises on LDN centered ISLUPs.  ✓ LDN metrics calibration: Review of national and international standards for the assessment of soil chemical analysis. Recommendations and suggestions for improving national standards in order to monitor LDN indicators.  ✓ Support to the establishment of Soil Organic Carbon (SOC) baseline in targeted regions; Soil sampling in the targeted districts and validation of LDN SOC indicator; advice with regard to monitoring of soil humus on agricultural lands in accordance with the GOST methodology (Soils. Methods for laboratory determination of organic substance content) or other methodology used in Armenia, Advising on Methods for recalculation of humus content indicator, according to SOC indicator. Providing practical advice on the methodology for conducting field research and analysis in support of LDN baseline and target setting.; Analysis of soil chemical composition and recommended methodology to assess soil productivity and degradation trends on irrigated/non-irrigated arable lands in targeted areas; support to identification of "LDN hot spots"; delivery of assessments and recommendation of measures for improvement of soil fertility.  ✓ providing recommendations for the set-up of a monitoring system of soil quality (and additional indicators measured in Armenia to complement the LDN default indicators) in the project pilot areas which will provide information and highlight the location of degraded agricultural land.
2x Pasture and Forests experts Rate: \$100/day	60 days/ year 1-2	Tasks (Outputs 1.1.1 and 1.1.2 and 3.1.1): Assists in LDN baseline validation and LDN target setting. Provides assessments of the land productivity, identifies trends in the dynamic of pastures productivity and assists in the assessment of land use type and land cover, analyses different land use scenarios defines and validates LDN baseline and targets for Gegharkunik and Vayots Dzor and assists other experts as necessary in establishing LDN targets for subsets of land use type (e.g. pastures/grassland and forests) in the selected communities/villages. Provides technical information and presentations for various awareness and training events.

Irrigation and Crop water requirements expert Rate: \$100/day	60 days/Year 1-2	Tasks (Output 1.1.1 and 1.1.2; and inputs into 3.1.3) : Supports the setting up of LDN targets and advises on LDN centered ISLUPs. Assess the existing irrigation norms and their enforcement (the current water use practices) , volumes and timing of irrigation in the targeted regions, existing water plans for irrigated agriculture; assess the soil condition (in coordination with the soil experts, LDN expert and other project experts) in the targeted regions by using existing data/information assessment report and by conducting new analysis and soil sampling in selected areas (as per the soil degradation assessments) of the two targeted regions. Provides technical information and presentations for various awareness and training events.
Economist/ Land degradation Expert Rate: \$100/day	80 days/ 1-2	Tasks (Output 1.1.1 and 1.1.2) : Provides analysis and economic estimations of land degradation in project areas to inform LDN target setting and integrated land use planning (ISLUPs) and cost-effectiveness of project planned interventions ; Provides technical presentations and coaching to local communities in targeted areas, on writing the funding proposals (under Grants mechanism) ; supports the assessment of the cost effectiveness of the SLM measures proposed to be financed under the Grant Mechanism;
<b>International contracting</b>		
International LDN expert Rate: \$750/day	50days; year 1-3	Tasks (output 1.1.1/1.1.4). Leads the setting of LDN regional targets in Gegharkunik and Vayots Dzor. Although the LDN expert will be providing technical expertise mainly to the project's work within the frameworks of Output 1.1.1 and will provide targeted training session on LDN under Output 1.1.4, his/her technical advice will be provided across all outputs. The main tasks are to lead the LDN baseline identification and LDN regional targets setting in Gegharkunik and Vayots Dzor as well as advice on LDN compliant land use planning. In addition, provides technical support to analysis of land degradation trends in the two regions, provides technical recommendations to mainstream LDN targets in land use planning. Supports the development of the LDN Compatible GIS based Land Use Concept <sup>56</sup> .  Works with the LUP4LDN experts. Guides the land use planning experts and pasture/agronomics on LDN principles and counterbalancing measures. Provides technical inputs into information and training materials, explaining the LDN philosophy. Participates in training workshops and seminars (either in person and/or online) , delivers presentations to explain what LDN stands for, to explain LDN target setting process at national and local levels, steps, methodology required and stakeholders engagement . Coaches the team of project experts on LDN matters. Supports project's multi-stakeholders' engagement during LDN target setting. Develop the Integrated LDN compatible Land Use Planning Manual and recommendations for the local authorities in the targeted project areas (in coordination with the Land Use Planning Expert) Additional tasks: Delivers presentations at education and awareness seminars and regional LDN workshop (Output 1.1.1).
International Land use planning Rate: \$750/day	50 days; year 1-3	Tasks (Output 1.1.2/Output 1.1.4): Leads the development of the integrated spatial and land use planning in the targeted communities and the national land use experts and develops methodologies and approaches that will be integrated LDN into the land use planning processes. Supports the targeted training sessions under Output 1.1.4. delivering presentations on LDN centered integrated and land use planning. Provides strategic advice and technical input in support of the identification of the land use planning needs at the local level in the pilot districts and determine mechanisms to integrate land use sustainability in the Integrated Land Use Plans, aligned with LDN philosophy. Oversees and provides technical support to different stages of the land use planning under Output 1.1.2 and leads the development of the LDN compatible Spatial and Land Use Plans at community level in the targeted districts and works with national and local authorities, supported by other experts. Works with LUP4LDN experts. Works in coordination with International LDN expert). Develops the Integrated LDN compatible Land Use Planning Manual and the LDN Compatible GIS based Land Use Concept (supported by the GIS experts and LUP4LDN experts as feasible) and recommendations for the local district authorities in the targeted project areas. Together with the International LDN expert, provides strategic guidance to the team of experts working on different outputs under Components 3. Facilitates project's multi-stakeholders' engagement during land use planning and delivers training on ISLUPs and integrated land use planning and management presentations to different events (either in person or using on-line platforms).

<sup>56</sup> The LDN compatible GIS based land use concept will include reference to the landscape (natural and cultural), soil, wildlife, biome maps. Each map will include categories of importance (high, medium, low value) along with sensitivity analysis. The land use concept will balance development priorities (economic and social) with conservation objectives in the area given the current status of ecosystems (habitat status, degree of degradation and sensitivity, available ecosystem services).

LUP4LDN Experts (or company)	30 days (year 2-3)	The LUP4LDN is a UNCCD endorsed software that is available for free <a href="https://www.wocat.net/en/projects-and-countries/projects/land-use-planning-land-degradation-neutrality-lup4ldn">https://www.wocat.net/en/projects-and-countries/projects/land-use-planning-land-degradation-neutrality-lup4ldn</a>  The use of the LUP4LDN software may need to be coupled with technical assistance and training, tutorials etc. In this case, the company (called SCIO) which has developed the LUP4LDN programme can be contacted for technical assistance (trainings and coaching). <a href="https://scio.systems/lup4ldn/">https://scio.systems/lup4ldn/</a>
Technical consultancies		
<b>Component 2</b>		
Local/national contracting		
<b>Task Leader Component 2+Output 3.1.4/Senior Protected Areas Project Specialist (coordinating Outputs 2.1.1; 2.1.2; 2.1.3; 2.2.1 and 3.1.4)</b> Rate: \$ 1200/ month	60 months/ years 1-5	Tasks (Outputs 2.1.1; 2.1.2; 2.1.3; 2.2.1; 3.1.4). He/she is responsible for the implementation of Component 2 and achievement of all the outputs and indicators. Example of tasks: Working with the technical national experts, the Task Leader Component 2 is coordinating the protected areas/biodiversity related technical outputs and supports implementation of activities in support of Component 2. He/she works with the other Task Leaders (of other project components) in order to integrate the work on PA and Biodiversity (BD) with the LD/LDN and land use planning and the work on sustainable land and water resources management in buffer and production zones. Liaises with the national counterparts (relevant departments in the line ministries and agencies and NGOs involved in project activities) and provides technical inputs and peer-reviews of the biodiversity assessment and other related reports produced by the national team of experts; support different phases of the preparation of the Sevan National Park Business Plan and provides leadership to community outreach activities, facilitating round table meetings and discussion in order to conclude local partnerships and consensus on ecological corridors and biodiversity-friendly agricultural practices in buffer and production areas (facilitates the signature of 5 Agreements based on WWF Armenia good practices, under Output 3.1.4). Supervises the Caretaker network set up in Gegharkunik. Facilitates sharing of experience between “Caretakers” in the communities of Vayots Dzor and future “caretakers” in Gegharkunik. Facilitates and support experts’ field missions and participates into monitoring of wild ungulates and species conservation activities; together with the national experts and ministry partners and Academy of Science institutes and different NGOs plans species centered conservation activities focused especially on key biodiversity species; supervises activities in support of different Outputs under Component 2 and Output 3.1.4 under Component 3; assessments of KBAs/IBAs in project areas and preparation of justification for mainstreaming biodiversity (species and habitats, KBAs, IBAs nature reserves, sanctuaries etc) spatial requirements in the ISLUPS; ensures coordination and regular meetings with the ministry partners and promotes stakeholders participatory approaches and women and youth and other vulnerable groups’ participation into the project activities; Coordinates with the Ministry counterparts and ensures that training activities are implemented according to the work plan; supervises training development modules for PAs ensuring the adoption of new and diversified learning approaches tailored to the PAs staff positions requirements; ensures translation of IUCN good practices guidelines in PAs management into local languages and supports the procurement of field pocket guides for identification of flora and fauna in Sevan National Park. Ensures METT updates. Monitors indicators. Facilitates the Sevan Park community outreach and establishment of local monitoring activities with schools. Facilitates Innovation Challenge (contest). Contributes with technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)
GIS Specialist (Protected Areas) Rate \$ 150/day	120 days/ Year 1-3	Tasks (Output 2.1.1;2.2.1) Works with team of experts and Task Leaders to support habitat mapping, and preparatory work for the targeted PA/KBAs/IBAs species and habitats inventory, preparation of the justification documents for mainstreaming of spatial requirements of biodiversity (species and habits) in ISLUPS and supports the geo-referencing for zoning and delineation of the buffer areas.
Zoologist (Wildlife specialist ungulates and predators) Rate \$ 100/ day	160 days/ years 1-4	Tasks (Output mainly 2.1.1; 2.2.1): Conducts inventories of mammals, including avian records; establishing key indicator species and monitoring protocols and preparation of feasibility studies of KBAs/IBAs under the project scope. Support the Sevan National Park staff to establish monitoring protocols for key species. Trains and coaches for the PA staff. Preparation of scientific information and mapping of Bezoar Goat and advice on re-colonization options and extension of habitats to Gegharkunik region. Contributes with technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)



Ornithologist Rate \$ 100/ day	160 days/ years 1-4	Tasks (Output 2.1.1 2.2.1 4.1.1. 4.1.2, 3.1.1): Conducts avifauna inventories and preparation of studies of KBAs/IBAs, nature reserves, establishing sustainable management actions, key indicator species and monitoring protocols. Additional tasks: Provides technical inputs into PAs management plans, supports PAs zoning decisions. Support the Sevan National Park staff to establish monitoring protocols for key species. Trains and coaches for the PA staff. Preparation of scientific information material for the PA/KBA/IBA; development of methods for decreasing negative anthropogenic impacts for PAs/KBA/IBA. Contributes with technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)
Herpetologist Rate \$ 100/ day	60 days/ years 2-3	Tasks (Output 2.1, 2.2, 2.3, 3.1.4): Conducts herpetofauna inventories and preparation of monitoring protocols for key species, trains and coaches PA staff to carry out monitoring and identification of species in the field. Provides technical inputs into PAs Business Management Plan as needed. Preparation of scientific information material for PAs; development of methods for decreasing negative anthropogenic impacts for PA/KBAs/IBAs. Contributes with technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)
Botanist (flora inventories; pasture inventory) Rate \$100/day	140 days/ year 1-2	Tasks (Output 2.1, 2.2, 2.3, 3.1.4): Conducts botanical inventories of vascular plants and vegetation assessment and preparation of inventories and reports on biodiversity in the KBA/IBA, Palearctic grasslands, nature reserves, wildlife sanctuaries proposes key indicator species and proposed monitoring protocols; proposes biodiversity spatial requirements and related management measures that need to be mainstreamed (taken into consideration) in land use plans (ISLUPs); Contributes with technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)
Forestry expert Rate \$100/day	60 days/ years 2-3	Tasks (Output 2.2.1 3.1.3 3.1.4): Support mapping of the key forest ecosystems in the PA. KBA IBA, nature reserves, wildlife sanctuaries under the project scope. Provides technical advice on sustainable forest management in and around PAs and KBAs/IBAs; and recommends forest regeneration strategies, proposes monitoring indicators for the assessment of the forest ecosystems recovery, supports the identification of regeneration measures for juniper forest ecosystems; writes a Forest Management Action Plan for with priority fire prevention/management measures (to be integrated with Hayantar Forest Management Plans). Provides technical recommendations for delineation of ecological corridor areas and integration of forest ecosystems into the landscape; provides recommendations for preventing illegal/unsustainable forest use. Supports local communities' outreach, advising on Sustainable Land Management SLM measures that should be implemented by local communities in the PA/KBA/IBAs proximity, in production zones. Contributes with technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)
Freshwater ecosystems specialist/limnologist Rate \$100/day	160 days/ years 1-4	Tasks (Output 2.1.1, 2.2.1): Evaluates physical, chemical, biological water quality status in the lakes/water bodies in Sevan Basin landscape (sampling work and analysis) writes reports and assessments on the water quality providing preliminary observations and recommendations to sustain ecological integrity of water ecosystems. Provides recommendations for key water quality biotic and abiotic indicators and monitoring protocols. (Output 2.1.1 2.2.1). Works with the Water Specialist and selects 1-2 priority wetland areas for restoration of freshwater habitats, prepares justification and proposes restoration measures.
Water management specialist Rate \$100/day	80 days/ years 2-3	Task: Output 2.1.1. Works with the Limnologist and other experts and develops an assessment of the ecological status of Sevan basin rivers and wetlands (including climate change vulnerability assessment) which represent the spawning grounds for key fish species in the Lake Sevan. Based on the conclusions of this assessment, priority conservation/restoration measures of important fish spawning grounds and critical wetland areas will be identified as well as potential regulatory amendments that may be necessary in order to enable restoration measures. Includes also an assessment of the existing water bodies in fishery sector operations, assessment of the exiting fishing licenses and environmental state of the lakes and water bodies used by fishery enterprises; provide technical assessment of the losses in fishery resources due to unstable hydrological regime and provide preliminary recommendations. Works with the Limnologist and supports the Ministry for Environment in selecting 1-2 priority wetland areas for restoration of freshwater habitats, prepares justification and proposes restoration measures.

Environmental Economist (specialized on Biodiversity/PA)	100 days/Years 2-4	Tasks (Output 2.1.1): Works with the Task Leader and Ecotourism Senior Expert, and other experts and develops: (i) Sevan National Park cost/benefit analysis supporting the Park to conduct results-based budgeting including: costing of operational and capital needs and assessment of cost-efficiency; budget management measures to ensure sustainable PA management financing identifying the revenue sources; development of mechanisms for income-generation and business opportunities related to rational use of resources; adapting the staffing tables and management plan to the scenario in which revenues are optimally matched with the cost needs etc. In addition, Assessment of the PA income generation business opportunities and development of the Business Plan, to include new revenue streams but also cost-effective measures to better use the existing budgetary allocations and funding. The Business plan will be based upon best international experience, and it will help with identifying potential economic opportunities, break down investment costs, examine potential markets, and provide instructions on how to develop and maintain sustainable biodiversity friendly businesses and engaging local entrepreneurs and communities. Facilitates the setup of 2 PPPs between Sevan National Park SNCO and tourist operators to promote Sevan biodiversity values.
Ecotourism Expert Rate \$ 100/day	80 days/Years 2-4	Tasks (Output 2.1.1, 2.1.2; 3.1.4) together with the Environmental economist provides: (i) mapping out existing eco-tourism destinations, and local infrastructures, existing and intended tourism investments (that promotes nature-cultural heritage objectives) in the project area and help to raise local community awareness, interest and participation in eco-tourism initiatives; (ii) develops an Assessment Report on the Potential for Ecotourism in the two targeted regions (Gegharkunik and Vayots Dzor) . The report will include practical recommendations of action needed from local authorities and also any potential policy and regulatory amendments needed in order to promote eco-tourism and valorization of Sevan Ramsar site and KBAs/IBA in Gegharkunik and Vayots Dzor; investments for the development of eco-tourism infrastructure in the project area that promotes valorization of Sevan Ramsar site, and KBA/IBAs in Gegharkunik and Vayots Dzor, and recommendations to include identified key ecotourism itineraries within the broader tourism circuits; includes recommendations for safe tourism in the targeted areas according to applicable safety standards, norms and regulations in the country; The report will further include a roadmap for implementation of proposed measures and involvement of private sector and local NGOs. The Ecotourism Expert will develop and deliver tailor-made training modules for the local communities in the project PA/KBAs/IBAs area and will deliver the trainings (under Output 3.1).
Capacity Development for PAs experts (TNA) Rate \$100/day	30 days/year 1-2	Tasks (Output 2.1.1): Conducts Training Needs Assessment for PA staff (Sevan National Park); write a TNA report with concrete training recommendations/topics and develops a training programme for PA staff. Together with other experts he/she will also deliver presentations on training topics.  Works with the other experts and with the dedicated company/NGO (that will be hired to design and deliver the training modules).
PAs inspection and patrolling expert Rate \$100/day	80 days/year 2-5	Tasks (Output 2.1.1, 3.1.4):. Develops and delivers Training modules to ecological inspectors, PA rangers, police, foresters; develops a workplan for the targeted reserves and sanctuaries KBAs/IBAs to counteract illegal activities, poaching and unsustainable harvesting of natural resources; supports community outreach and round table discussions with ecological inspectors and local police on the need to address the illegal activities affecting biodiversity.
Community outreach Specialist Rate: 100\$/day	150 days/year 2-5	Tasks (Output 3.1.4): Supports the Task Leader for Component 2 and Output 3.1.4 to identify the local volunteers and community leaders that will be promoting the ecological corridors and Caretakers Network. Supports the finalization of 5 Community Agreements and identification of the local alternative income activities and measures to be supported by the project.
Senior Communication Specialist (RP) Rate: 6,000 USD /year	5 years (part time)	Tasks (Component 2; Output 3.1.4; Output 4.1.1, 4.1.2) Responsible for the implementation of the communication and awareness activities and the implementation of the Communication Plan/KM Plan related to the Component 2 and Output 3.1.4 implemented by the WWF Armenia (RP). Supports the Project manager in the implementation of awareness campaigns and feasible measures recommended by the behavior change analysis at PPG stage.

Technical consultancies

Component 3

<p><b>Task Leader for the SLM measures (Outputs 3.1.1/3.1.2/3.1.3)</b></p> <p>Rate: \$ 1200/ month</p>	<p>60 months/ years 1-5</p>	<p>Tasks (Outputs 3.1.1.; 3.1.2; 3.1.3). He/she is responsible for the implementation of Outputs 3.1.1; 3.1.2; 3.1.3 and achievement of all the indicators. Example of tasks: Working with other technical national experts, the Task Leader for SLM is coordinating the setup of the Agri-Environmental- Payment Scheme and the SLM work on pastures, water, and forests areas in the project areas. He/she liaises with the national counterparts (relevant departments in the line ministries and agencies and NGOs involved in project activities) and provides technical inputs and peer-reviews of the pastures/forests/water resources assessments and other related reports produced by the project national team of experts.</p> <p>Facilitates and support experts’ field missions and participates into the inventories of pastures/water/forests resources and identification of the adequate SLM measures aligned with LDN indicators; together with other national experts and ministry partners and Academy of Science institutes promotes biodiversity sensitive pastures and grasslands management and LDN centered SLM measures for sustainable pastures and forests and water management; ensures coordination and regular meetings with the ministry partners and promotes stakeholders participatory approaches and women and youth and other vulnerable groups’ participation into the project activities; Coordinates with the Ministry counterparts and ensures that training activities of local natural resources users (farmers, WUAs, CSOs local NGOS) are implemented according to the work plan; supervises training development modules for pastures/forests/water management ensuring the adoption of new and diversified learning approaches tailored to requirements of the audience; Monitors indicators. Facilitates the Sevan Park community outreach and establishment of local monitoring activities with schools. Facilitates Innovation Challenge (contest). Contributes technical inputs into training materials (Output 2.1.1), delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2).</p> <p>Ensures the implementation of risk management measures and continuous risk monitoring, supports development of SESA and ensures implementation of ESMF and ESMP related to risk management measures, concerning risks from the water and land use planning, demonstration of efficient natural resources management measures at project sites (Annex 6, SESP). Supports SESP updates/revisions of risk categorization as needed.</p>
<p>Pasture agronomist (2)</p> <p>Rate \$100/day</p>	<p>250 days/ years 1-5</p>	<p>Tasks (Output 3.1.1): Provides technical support in the identification of pasture resources in the targeted areas. Provides analysis of trends in the dynamic of pastures condition, pasture productivity, pastureland degradation. Leads the development of the pasture management. Provides strategic advice and recommendations for the validation of the Agri-Environmental Payment Scheme Indicators, the integration of Sustainable Land Management SLM measures and biodiversity sensitive activities and risk management measures in the Pasture Management Plans. Provides recommendations and drafts proposals to amend existing legal framework in order to introduce subsidies for farmers applying SLM measures; Participates into assessment of SLM Innovation Challenge proposals and supports work on innovative land restoration promoted through various project assisted activities. Works with the Pasture Users Committees, provides technical guidance to the project team and local field coordination in support of the Pasture Management Plans implementation throughout the project duration. Contributes with technical inputs into training materials, delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)</p>
<p>Botanist</p> <p>Rate \$100/day</p>	<p>90 days/years 1-3</p>	<p>Tasks (Output 3.1.1; 3.1.4) Works in coordination with the team of scientists involved in inventories under Outcome 2. Provides technical support for the pastures and grasslands plant biodiversity inventories. Supports the validation of the indicators included in the Agri-Environmental Payment Scheme particularly related to biodiversity. Contributes with technical inputs into training materials, delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)</p>
<p>Zoologist</p> <p>Rate \$100/day</p>	<p>90 days/year 1-3</p>	<p>Tasks (Output 3.1.1; 3.1.3; 3.1.4) Works in coordination with the team of scientists involved in inventories under Outcome 2. Provides technical support for the pastures and grasslands plant biodiversity inventories. Supports the validation of the indicators included in the Agri-Environmental Payment Scheme particularly related to the biodiversity. Supports the identification of main species in pasture and forest areas under the project scope. Contributes with technical inputs into training materials, delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2)</p>

Forestry expert Rate \$100/day	100 days/ years 1-3	Tasks (Output 3.1.3; 3.1.4): Supports mapping of the key forest ecosystems in the pilot forest areas, under the project scope. Provides technical advice on sustainable forest management, supports the updating of forest management plans under Output 3.1.3; recommends forest regeneration strategies under Output 3.1.3, proposes monitoring indicators for the assessment of the forest ecosystems recovery, supports the identification of regeneration measures for juniper forest ecosystems; provides technical input for updating of forest management plans with efficient/modern fire prevention/management measures (to be mainstreamed by Hayantar Forest Management Units within their existing plans). Contributes with technical inputs into training materials, delivers presentations during training sessions, and provides inputs into awareness and information materials (Output 4.1.1/4.1.2).
Independent Pasture management Assessor Rate \$100/day	60 days Years 3-5	Tasks: Output 3.1.1 Supports the Ministry of Environment and other investors in the Agri-Payment Scheme to assess the Return of Investment and provides an independent assessment of the Agri-Payment Scheme results obtained in the field.
Hydrologist Rate \$100/day	120 days Years 1-3	Tasks (Output 3.1.2): review the state of hydrotechnical facilities and irrigation network in the project pilot communities conduct field and office studies as necessary, to provide an overall assessment of the current operational conditions, review plans for investments and maintenance works of the hydrotechnical facilities and provide recommendations for investments into new water storage capacities at local level (and/or repairing existing ones), improvement and modernization of the hydrotechnical facilities (reservoirs, irrigation system). Support targeted WUAs to write project proposals and mobilize co-financing for the necessary repairs of the local irrigation infrastructure.
Irrigation and crop water requirements expert Rate: \$100/day	100 days Year 1-3	Tasks (Output 3.1.2): Work together with the hydrologist (under Task 3.1.2). Assess the existing irrigation norms and their enforcement (the current water use practices), volumes and timing of irrigation in the targeted communities, existing water plans for irrigated agriculture and develop assessment report and recommendations for improving water use efficiency recommending optimising irrigation requirements and timing. Develop science-based irrigation requirements and timing of water releases, considering the predicted climate induced water deficits; assess soil condition (in coordination with other project experts). Support the design of sustainable farming measures including crop rotation and intercropping, suggesting ways of limiting the fertilizers application or applying organic fertilizers, considering soil salinization, improvement of irrigation systems and implementation of water saving technologies.
Environmental economist expert Rate \$100/day	40 days Year 2-3	Tasks: Output 3.1.4. The main task will consist in supporting the project's grants and assessing these proposals from the socio-economic benefits and sustainability point of view. Providing assessment focused <b>on benefit-cost ratio (BCR)</b> and the likely payback period (yrs.) of the interventions. Those interventions that cannot demonstrate a BCR in excess of 2:1 and a payback period of less than 10 years will not be funded. Support the ranking of proposals on the basis of their economic returns as part of the selection process. Participate in the training of local communities to develop the cost-benefit ratio of these proposals.
<b>Component 4/ KM</b>		
<b>Local/National Contracting</b>		
<b>Senior Communication Specialist (IP)</b> Rate: 6,000 USD /year	5 years (part time)	Tasks (Output 4.1.1/4.1.2): Supports the Project manager and it is responsible for the implementation of the communication and awareness activities and the implementation of the Communication Plan/KM Plan. Works closely with the Communication Specialist of WWF Armenia (RP) in order to implement harmonized awareness and PR activities and campaigns across components implemented by IP and RP. Supports the Project manager in the implementation of awareness campaigns and feasible measures recommended by the behavior change analysis at PPG stage.
<b>Senior Knowledge Management Consultant</b> Rate: 6,000 USD /year	4 years (years 2-5)	Tasks (Outcome 4): Responsible with the implementation of feasible measures (related to awareness and knowledge sharing) recommended by the PPG behavior analysis and undertake a systematization of the project's generated knowledge (starting with the 3 <sup>rd</sup> year). Supports the Project manager to develop the Scaling Up and Replication Strategy of the Project. Supports implementation of the Knowledge Management Plan.  Provides advice to Task Leaders, and relevant project experts related to the use of monitoring and evaluative knowledge to achieve Outcomes and Outputs.

Component 5/ M&E		
Local / National contracting		
M&E Programme Monitoring Expert (GEB) Rate: 10,000 USD/year	5 years (years 1-5)	Tasks (Output 5.1.2): Supports the Project manager and keeps track of the progress towards the GEB (Global Environmental benefits); compiling results from different Component coordinators and monitoring of the indicators under the Results Framework; monitors GEF Core Indicators, operating updates and oversee other activities as per the M&E plan. Monitoring environmental and social risks. Provides advice to Task Leaders, Field Coordinators and relevant project experts related to progress towards GEB, M&E and coordination with KM in support of the project's adaptive management.
National M&E Expert Midterm Evaluation Rate: \$100/day	20 days (year 3)	Tasks: conduct the mid-term project review jointly with the International M&E Expert and following UNDP and GEF guidelines. Key Deliverables: mid-term project review report.
National M&E Expert Final evaluation Rate: \$100/day	20 days (year 5)	Tasks: conduct the terminal project evaluation jointly with the International M&E Expert and following UNDP and GEF guidelines. Key Deliverables: terminal project evaluation report.
International contracting		
M&E Expert Rate: \$700/day	30 days (year 3)	Tasks: conduct the mid-term project review jointly with the national M&E Expert and following UNDP and GEF guidelines. Key Deliverables: mid-term project review report; management responses document.
M&E Expert Rate: \$700/day	30 days (year 5)	Tasks: conduct the terminal project evaluation jointly with the national M&E Expert and following UNDP and GEF guidelines. Key Deliverables: terminal project evaluation report; management responses document.

## Part B: Roles and Responsibilities of Project's key positions

Staff/Consultant Time Input	Tasks, Inputs and Outputs
<b>Local / National contracting</b>	
<p><b>Project Manager/ Coordinator</b></p> <p><i>Rate: \$1,500/month</i></p> <p><i>60 months / over 5 years</i></p>	<p>The PM will be responsible for the overall management of the Project, including the mobilisation of all project inputs, supervision over project staff, consultants and sub-contractors.</p> <p>It is the PM's primary responsibility to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager will inform the Project Board and the Project Assurance roles of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.</p> <p><u>Duties and Responsibilities</u></p> <ul style="list-style-type: none"> <li>• Manage the overall conduct of the project;</li> <li>• Plan the activities of the project and monitor progress against the approved workplan.</li> <li>• Execute activities by managing personnel, goods and services, training and low-value grants, including drafting terms of reference and work specifications, and overseeing all contractors' work.</li> <li>• Monitor events as determined in the project monitoring plan, and update the plan as required. Monitors implementation of ESMF and SESP measures.</li> <li>• Provide support for completion of assessments required by UNDP, spot checks and audits.</li> <li>• Manage requests for the provision of UNDP financial resources through funding advances, direct payments or reimbursement using the FACE form.</li> <li>• Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports. Monitors co-financing and addresses risks.</li> <li>• Monitor progress, watch for plan deviations and make course corrections when needed within project board-agreed tolerances to achieve results.</li> <li>• Ensure that changes are controlled, and problems addressed.</li> <li>• Perform regular progress reporting to the project board as agreed with the board, including measures to address challenges and opportunities.</li> <li>• Prepare and submit financial reports to UNDP on a quarterly basis.</li> <li>• Manage and monitor the project risks – including social and environmental risks – initially identified and submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log;</li> <li>• Capture lessons learned during project implementation and managed the KM activities (supported by the KM/PR experts).</li> <li>• Ensures the achievement of the GEB and is responsible for the monitoring of the progress towards the pledged GEB (supported by the M&amp;E/GEB expert) and ensures that monitoring and evaluative knowledge informs the adaptive management; ensures monitoring of risks and safeguards and implementation of the adequate measures as per UNDP SES requirements (supported by the SES experts).</li> <li>• Prepare revisions to the multi-year workplan, as needed, as well as annual and quarterly plans if required.</li> <li>• Provides technical inputs and edits into project technical reports and assessments.</li> <li>• Prepare the inception report no later than one month after the inception workshop.</li> <li>• Ensure that the indicators included in the project results framework are monitored annually in advance of the GEF PIR submission deadline so that progress can be reported in the GEF PIR.</li> <li>• Prepare the GEF PIR;</li> <li>• Assess major and minor amendments to the project within the parameters set by UNDP-GEF;</li> <li>• Monitor implementation plans including the gender action plan, stakeholder engagement plan, and any environmental and social management plans;</li> <li>• Monitor and track progress against the GEF Core indicators.</li> <li>• Support the Mid-term review and Terminal Evaluation process.</li> </ul>

Staff/Consultant Time Input	Tasks, Inputs and Outputs
	<p><b>Technical tasks related to following products:</b> (i) Elaboration of methodologies and Study on the land degradation assessment (Output 1.1; and 1.2) (ii) Inputs into pastures inventory and assessment of degradation (iii) Technical inputs and editing of Guidelines and Manuals developed under Output 1.1. 1.2, 2.2.1 (iv) Technical inputs and editing of the PA Business Management Plan (Output 2.1.2) (v) Training modules and awareness raising materials (Output 4.1.1; 3.1.1; 3.1.2; 3.1.3; 3.1.4) (vi) Technical inputs into the Project Sustainability and Replication Strategy; (vi) Technical inputs into the grant proposals review (3.1.4); (vii) technical inputs in support of the recommendations for behaviorally informed policies (across outputs).</p> <p><u>Qualifications required:</u></p> <ul style="list-style-type: none"> <li>• A university degree (MSc or PhD) in a subject related to natural resource management or environmental sciences or Sustainable Land Management (SLM).</li> <li>• At least 10 years of experience in natural resource management</li> <li>• At least 5 years of demonstrable project/programme management experience.</li> <li>• At least 5 years of experience working with ministries, national or local level institutions that are concerned with natural resource and/or environmental management.</li> </ul> <p><u>Competencies</u></p> <ul style="list-style-type: none"> <li>• Strong leadership, managerial and coordination skills, with a demonstrated ability to effectively coordinate the implementation of large multi-stakeholder projects, including financial and technical aspects.</li> <li>• Ability to effectively manage technical and administrative teams, work with a wide range of stakeholders across various sectors and at all levels, to develop durable partnerships with collaborating agencies.</li> <li>• Ability to administer budgets, train and work effectively with counterpart staff at all levels and with all groups involved in the project.</li> <li>• Ability to coordinate and supervise multiple Project Implementation Units in their implementation of technical activities in partnership with a variety of subnational stakeholder groups, including community and government.</li> <li>• Strong drafting, presentation and reporting skills.</li> <li>• Strong communication skills, especially in timely and accurate responses to emails.</li> <li>• Strong computer skills, in particular mastery of all applications of the MS Office package and internet search.</li> <li>• Strong knowledge about the political and socio-economic context related to the Indonesian protected area system, biodiversity conservation and law enforcement at national and subnational levels.</li> <li>• Excellent command of English and local languages.</li> </ul>
<p><b>Project Financial and Administrative Assistant</b></p> <p>Rate: \$ 800/month</p> <p>60 months / over years 1-5</p>	<p>Under the guidance and supervision of the Project Manager, the Project Financial and Administrative Assistant will carry out the following tasks:</p> <ul style="list-style-type: none"> <li>• Assist the Project Manager in day-to-day management and oversight of project activities;</li> <li>• Keep records of project funds and expenditures and ensure all project-related financial documentation are well maintained and readily available when required by the Project Manager.</li> <li>• Review project expenditures and ensure that project funds are used in compliance with the Project Document and national financial rules and procedures;</li> <li>• Validate and certify FACE forms before submission to UNDP;</li> <li>• Provide necessary financial information as and when required for project management decisions;</li> <li>• Provide necessary financial information during project audit(s);</li> <li>• Review annual budgets and project expenditure reports, and notify the Project Manager if there are any discrepancies or issues;</li> <li>• Consolidate financial progress reports submitted by the responsible parties for implementation of project activities;</li> <li>• Liaise and follow up with the responsible parties for implementation of project activities in matters related to project funds and financial progress reports;</li> <li>• Assist the M&amp;E and Safeguards Officer in matters related to M&amp;E and knowledge resources management;</li> <li>• Assist in the preparation of progress reports;</li> </ul>

Staff/Consultant Time Input	Tasks, Inputs and Outputs
	<ul style="list-style-type: none"> <li>• Ensure all project documentation (progress reports, consulting and other technical reports, minutes of meetings, etc.) are properly maintained in hard and electronic copies in an efficient and readily accessible filing system, for when required by the Project Board, UNDP, project consultants and other PMU staff;</li> <li>• Provide PMU-related administrative and logistical assistance.</li> <li>• Assist in the preparation of progress reports;</li> </ul> <p><u>Qualifications required:</u></p> <ul style="list-style-type: none"> <li>• A Bachelor’s degree or an advanced diploma in accounting/ financial management;</li> <li>• At least five years of relevant work experience preferably in a project management setting involving multi-lateral/ international funding agency. Previous experience with UN project will be a definite asset;</li> <li>• Proficiency in the use of computer software applications particularly MS Excel;</li> <li>• Excellent language skills in English (writing, speaking and reading).</li> <li>• Very good inter-personal skills;</li> <li>• Proficiency in the use of computer software applications especially MS Word and MS Excel.</li> <li>• Excellent language skills in English (writing, speaking and reading) and in local languages</li> </ul>
<p><b>Project Procurement Assistant</b></p> <p>Rate: \$800/month 60 months / over years 1-5</p>	<p>Under the overall supervision and guidance of the Project Manager, the incumbent will have the following specific responsibilities:</p> <ul style="list-style-type: none"> <li>• Develop Annual Procurement Plans based on the Project’s Annual Work Plans (AWPs); Monitor progress in implementation of the Procurement Plans;</li> <li>• Ensure full compliance of procurement activities with UNDP NIM rules, aligned with government procurement rules and procedures;</li> <li>• Support the development of TORs and conduct all the procurement and contracting under the project, including: advertising and invitation for tendering; organizing bidding meetings; tender openings; selection panels; writing minutes; participate in selection panels and facilitate evaluation of bids/offers/applications; ensure that all supportive documents related to the project procurement/contracting that are submitted for the Project Manager’s approval, are prepared according to the AWPs and NIM rules and regulations and aligned with the government procurement rules and regulations;</li> <li>• Management of the contracts, monitoring deliverables and disbursement of payments;</li> <li>• Provide advice to the Financial and Administrative Assistant on document filing system either in paper or electronic form;</li> <li>• Provide advice to the project staff on procurement rules and administrative procedures under the NIM with cash advance transfer modality;</li> <li>• Work with the M&amp;E officer and provide any necessary inputs into monitoring and evaluation;</li> <li>• Support the full NIM audit exercise, providing orderly filing and supporting documents for audit purposes;</li> </ul> <p><u>Qualifications and experience required:</u></p> <ul style="list-style-type: none"> <li>• Bachelor’s degree in business administration, Public Administration, Finance, Economics, Accounting or related field; Additional procurement certification is an asset;</li> <li>• At least 3 years demonstrated experience in procurement and contract management is mandatory; understanding of project management is an asset;</li> <li>• Previous experience in working across units of management of the government agencies or in business sector;</li> <li>• Experience in usage of computers and office software packages (MS Word; Excel etc.);</li> <li>• Good working knowledge of English</li> <li>• Proficiency (writing, speaking and reading) in local languages.</li> </ul>



Staff/Consultant Time Input	Tasks, Inputs and Outputs
<p><b>Project Task Leader (Component Coordinator)</b></p> <p>3 Posts</p> <p>Rate: 1200 USD/month</p> <p>Time: 60 months/over 5 years</p>	<p>Under the overall supervision and guidance of the Project Manager and in close coordination with the International Technical Advisor, the Project Task Leader (please note: the <i>Component coordinator for Outcome 2 will also supervise Output 3.1.4</i>) will have the responsibility for leading the outputs under the respective project component, design and plan the implementation of project activities that will be leading to these outputs, provide technical backstopping and monitoring of the realization of these outputs. The main duties and responsibilities of the Task leader (Component Coordinator) are:</p> <ul style="list-style-type: none"> <li>• Participate in the planning, prioritizing and sequencing of the project component activities in close coordination with the Project Team</li> <li>• Develop and update detailed project component implementation plans under the guidance of the Project Manager and International Technical Advisor and in close consultation with the Field Coordinators and other project staff and ensure the implementation of activities related to his/her component. <ul style="list-style-type: none"> <li>• Coordinate and supervise technical inputs relating to component activity design, development and implementation. This will include preparation of TORs and subcontract tender documents and assessment of quality of consultant/contractor outputs;</li> <li>• Prepare and/or edit and supervise preparation of the knowledge management products relevant to the assigned component;</li> <li>• Regularly meet with local experts within targeted project sites, project partners, responsible for implementation of component activities to discuss progress on progress and ensure that there is a common understanding of the direction of the project; ;</li> <li>• Under the guidance of the Project manager and International technical Advisor, monitor, review, assess and report on all dimensions of project component activity implementation.</li> <li>• Prepare relevant sections of Annual Work Plan and regular progress reports (including annual APR/PIRs and quarterly progress reports) on project results and outcomes related to his/her component;</li> <li>• Support Project Manager and International Technical Advisor in updating the work plans and budget of the project component, as well as tracking the expenditures and delivery rate of the project in relation to his/her component;</li> <li>• Closely work with relevant project component staff in building their capacity in all areas related to the management and regular monitoring of the assigned component;</li> </ul> </li> </ul> <p><u>Qualifications required:</u></p> <ul style="list-style-type: none"> <li>• University degree in the fields relevant to the specific Project Component ( e.g. Component 1 Coordinator will have technical background on Land use; Component 2+Output 3.1.4 Coordinator will have a technical background on biodiversity and livelihoods; and Component 3 will have a background on natural resources management)</li> <li>• Solid experience of at least 10 years in working on projects focused on natural resources management and livelihoods;</li> <li>• Previous experience working with donor-supported project either for the UN or other international organization is an asset;</li> <li>• Experience in the usage of computers and office software packages (MS Word, Excel, etc.).</li> <li>• Strong professional working capacity to use information and communications technology, specifically including website design and desk top publishing software</li> <li>• Understanding of illegal wildlife trade, biodiversity conservation, sustainable livelihoods and associated issues;</li> <li>• Very good inter-personal skills</li> <li>• Excellent language skills in English (writing, speaking and reading) and in local languages</li> </ul>

Staff/Consultant Time Input	Tasks, Inputs and Outputs
<p><b>Project Gender Officer (expert)</b> Rate: \$6,000/year years 1-5</p>	<p>Under the overall supervision and guidance of the Project Manager, the incumbent will have the following specific responsibilities:</p> <ul style="list-style-type: none"> <li>• Monitor progress in implementation of the project Gender Action Plan ensuring that targets are fully met, and the reporting requirements are fulfilled;</li> <li>• Oversee/develop/coordinate implementation of all gender-related work;</li> <li>• Review the Gender Action Plan annually, and update and revise corresponding management plans as necessary;</li> <li>• Work with the M&amp;E Project Expert to ensure reporting, monitoring and evaluation fully address the gender issues of the project.</li> <li>• Work with the SES expert and KM expert to ensure coordination of activities and implementation of safeguards measures related to gender.</li> </ul> <p><u>Qualifications required:</u></p> <ul style="list-style-type: none"> <li>• Master’s degree in gender studies, gender and development, environment, sustainable development or closely related area.</li> <li>• Demonstrated understanding of issues related to gender and sustainable development; at least 5 years of practical working experience in gender mainstreaming, women’s empowerment and sustainable development in Uzbekistan</li> <li>• Proven experience in gender issues in Uzbekistan</li> <li>• Previous experience with UN projects will be a definite asset;</li> <li>• Demonstrated understanding of the links between sustainable development, social and gender issues;</li> <li>• Experience in gender responsive capacity building;</li> <li>• Experience with project development and results-based management methodologies is highly desired/required;</li> <li>• Excellent analytical, writing, advocacy, presentation, and communications skills.</li> <li>• Excellent language skills in English (writing, speaking and reading) and in local languages.</li> </ul>
<b>International / Regional and global contracting</b>	
<p>Chief Technical Advisor Rate: 750 USD/day  150 days/over 5 years</p>	<p>The Chief Technical Advisor (CTA) will be responsible for providing overall strategic advice to the Project Manager and technical backstopping to the Task Leaders, Field Coordinators and team of national and international experts, in support of the realization of the Project Outputs under each component and contributing to the project’s adaptative management strategy. The TA will support the provision of the required technical inputs, reviewing and preparing Terms of Reference and reviewing the outputs of consultants and other sub-contractors.</p> <p><u>Duties and Responsibilities</u></p> <ul style="list-style-type: none"> <li>• Provide technical support to the Task Leaders, Field Coordinators and Project Manager and other government counterparts in the areas of natural resources management (in the project domains); supports work planning including site activities, monitoring, and impact assessment;</li> <li>• Support the Project Manager in preparing Terms of Reference for consultants and sub-contractors,</li> <li>• Supports the peer-review of the technical reports provided by the team of national and international consultants; works with the lead consultants to ensure that the reports include practical recommendations for national counterparts;</li> <li>• Support the Project Manager in coordinating the work of all consultants and sub-contractors, ensuring the timely delivery of expected outputs, and ensuring an effective synergy among the various sub-contracted activities;</li> <li>• Assist/advises the Task Leaders and Project Manager in the preparation of the Project Implementation Review/Annual Project Report (PIR/APR), inception report, technical reports, quarterly financial reports for submission to UNDP, the GEF, other donors and Government Departments, as required;</li> <li>• Assist/advises the Task Leaders and Project Manager in liaison work with project partners, donor organizations, NGOs and other groups to ensure effective coordination of project activities;</li> </ul>

Staff/Consultant Time Input	Tasks, Inputs and Outputs
	<ul style="list-style-type: none"> <li>• Support the Project Manager in documenting lessons from project implementation and make recommendations to the Steering Committee for more effective implementation and coordination of project activities;</li> <li>• Supports/advises from the technical point of view the implementation of the ESMF and SESP aligned with the UNDP SES policy and procedures;</li> <li>• Writes the Scaling Up and Replication Strategy of the Project (with the support of the other project’s specialists) to be presented to the Project Board and during the project’s final conferences.</li> <li>• Perform other tasks as may be requested by the National Project Coordinator and Project Manager.</li> </ul> <p><u>Qualifications</u></p> <ul style="list-style-type: none"> <li>• University education (MSc or PhD) in environmental sciences with specific expertise in the area of Sustainable Land Management (SLM);</li> <li>• At least 15 years of professional experience in natural resource management and rural entrepreneurship/ rural livelihoods;</li> <li>• Demonstrable experience in implementing equivalent GEF or other multilateral donor-funded projects;</li> <li>• Effective negotiation skills, with excellent oral and presentation skills;</li> <li>• A good working knowledge of international best practice in natural resource management planning is desirable;</li> <li>• Excellent writing skills; and</li> <li>• Excellent English skills are required for this assignment.</li> </ul>

## Annex 8: Stakeholder Engagement Plan

During the project preparation stage, a stakeholder analysis was undertaken to identify key stakeholders, assess their interests in the project and define their roles and responsibilities in the project implementation. The official mandates of key stakeholders are described in Annex 17 of the Project Document under the Legislative and institutional framework assessment. The stakeholder analysis identified the key stakeholders for the project based on their respective interests, production capacities, governance structure, academic focus, public mandates, or national policy directives. Consistent with the UNDP Draft Guidance Note 80 stakeholders are considered as the following: Persons, groups, or institutions with an interest in the project or the ability to influence the project outcomes, either positively or negatively. Stakeholders may be directly or indirectly affected by the project. The range of potential stakeholders is diverse and may include target beneficiary groups, locally affected communities or individuals, national and local government authorities, non-governmental organizations (NGOs) (both domestic and at times international), politicians, the academic community, private sector entities, other special interest groups, UN agencies and donors.

### Stakeholder Engagement Participation Approach

Stakeholder engagement will be carried out according to the following principles that have been identified as significant based on UNDP stakeholder engagement guidelines:

Principle	Stakeholder participation will:
Adding Value	Be an essential means of adding value to the project.
Inclusivity	Include all relevant stakeholders.
Accessibility and Access	Be accessible and promote access to the process.
Transparency	Be based on transparency and fair access to information.
Fairness	Ensure that all stakeholders are treated in a fair and unbiased way.
Accountability	Be based on a commitment to accountability by all stakeholders.
Constructive	Seek to manage conflict and promote the public interest.
Redressing	Seek to redress inequity and injustice.
Capacitating	Seek to develop the capacity of all stakeholders.
Needs-Based	Be based on the needs of all stakeholders.
Flexible	Be designed and implemented in a flexible manner.
Rational and coordinated	Be rationally planned and coordinated, rather than ad hoc.
Excellence	Be subject to ongoing selection and commitment.

### UNDP REGULATIONS AND REQUIREMENTS ON STAKEHOLDER ENGAGEMENT

UNDP is committed to meaningful, effective and informed stakeholder participation in the design and implementation all UNDP projects. [UNDP's commitment to stakeholder engagement](#) stems from internal policies, procedures and strategic documents, as well as key international human rights instruments, principles and numerous decisions of international bodies, especially with regard to the protection of the rights of citizens related to freedom of expression and participation.

UNDP also adheres to the UN Statement of Common Understanding on Human Rights Based Approaches to Development Cooperation, which provides for "*Participation and Inclusion: Every person and all peoples have the right to active, free and meaningful participation in, contribution to and enjoyment of civil, economic, social, cultural and political development in which human rights and fundamental freedoms can be realized*".

Undertake measures to ensure effective stakeholder engagement occurs where conditions for inclusive participation (please see SESP and ESMF attached to the Project document). The key UNDP SES stakeholder engagement requirements are:

- *Ensure meaningful, effective, informed participation of stakeholders in the formulation and implementation of UNDP programmes and projects, providing stakeholders opportunities to express their views at all points in the project decision-making process on matters that affect them (SES, Part C, paras. 18, 20)*
- *Conduct stakeholder analysis and engagement in a gender-responsive, culturally sensitive, non-discriminatory and inclusive manner, identifying potentially affected vulnerable and marginalized groups and providing them opportunities to participate (SES, Part C, para. 18)*
- *Develop appropriately scaled Stakeholder Engagement Plans, with level and frequency of engagement reflecting the nature of the activity, magnitude of potential risks and adverse impacts, and concerns raised by affected communities (SES, Part C, para. 21).*
- *Meaningful, effective and informed consultation processes need to be free of charge and meet specified criteria, including free of intimidation and external manipulation; initiated early and iterative; inclusive; gender and age responsive; culturally appropriate and tailored to language preferences; and based on timely disclosure of relevant, accessible information regarding the project, its social and environmental risks and impacts (SES, Part C, para. 20)*
- *Include differentiated measures to allow effective participation of disadvantaged or vulnerable groups, including persons with disabilities (SES, Part C, para. 20)*
- *Undertake measures to ensure effective stakeholder engagement occurs where conditions for inclusive participation are unfavorable (SES, Part C, para. 18)*
- *Document consultations and report them in accessible form to participants and the public (Part C, paras. 20, 28)*
- *Ensure early and iterative meaningful stakeholder engagement throughout the assessment and management of potential social and environmental risks and impacts (SES, Part C, para. 16)*
- *Ensure that stakeholders who may be adversely affected by the project can communicate concerns and grievances through various entry points, including, when necessary, an effective project-level grievance mechanism, and also UNDP's Stakeholder Response Mechanism and Social and Environmental Compliance Unit (Part C. 23-26, 37)*
- *For projects that affect rights, lands, territories, resources, and traditional livelihoods of indigenous peoples, ensure meaningful consultations and free, prior informed consent (FPIC) (Part C, para. 22; Standard 6, para. 10)*
- *For projects that may involve physical or economic displacement, ensure activities are planned and implemented collaboratively with meaningful and informed participation of those affected (SES, Standard 5)*
- *Provide ongoing reporting to affected communities and individuals for projects with significant adverse social and environmental impacts (SES, Part C, para. 34)*
- *Seek to identify, reduce and address the risk of retaliation and reprisals against people who may seek information on and participation in project activities, express concerns and/or access project-level grievance redress processes/mechanisms or UNDP's Stakeholder Response Mechanism or Social and Environmental Compliance Unit (SES, Part C, para. 27)*
- *Ensure that stakeholder analysis and engagement are conducted in a gender-responsive, culturally sensitive, non-discriminatory and inclusive manner, identifying potentially affected vulnerable and marginalized groups and providing them opportunities to participate. (SES, Part C, para. 18).*

Note: various SES Project-level Standards include other specific stakeholder engagement requirements.

Full and effective stakeholder engagement is one of the 6 overarching SES policy objectives and seeks to:

- ✓ provide meaningful access to dialogue and decision-making in development processes
- ✓ strengthen development results through effective partnerships identify stakeholder priorities to better tailor project activities, opportunities and benefits
- ✓ seek to ensure no one is left behind and disadvantaged and vulnerable project stakeholders have a voice in project development and implementation
- ✓ identify potential constraints and conflicts that could affect project effectiveness
- ✓ ensuring transparency, accountability and integrity
- ✓ learn from and incorporate local knowledge to improve project design and avoid and mitigate project-related risks and impacts
- ✓ provide a feedback and monitoring mechanism to ensure the project is achieving its intended results, and identifies potential unintended consequences

### **GEF POLICY ON STAKEHOLDER ENGAGEMENT**

The objective of [GEF policy on stakeholder engagement](#) is to promote the inclusive and meaningful participation of Stakeholders in GEF's mandate to protect the global environment. It sets out the core principles and mandatory requirements for Stakeholder Engagement in GEF governance and operations, with a view to promoting transparency, accountability, integrity, effective participation and inclusion in GEF-financed projects. The Policy reaffirms and operationalizes the GEF's commitment, with respect to GEF-Financed Activities, to "full disclosure of all non-confidential information, and consultation with, and participation as appropriate of, major groups and local communities throughout the project cycle". In addition, effective Stakeholder Engagement promotes country ownership by forging stronger partnerships, particularly with civil society, Indigenous Peoples, communities and the private sector, and by harnessing the knowledge, experience and capabilities of affected and interested individuals/groups.

### **GRIEVANCE REDRESS AND STAKEHOLDER RESPONSE MECHANISMS (GRM/SRM)**

During the project development and implementation phases UNDP project teams are responsible for engaging as many as possible stakeholders for consultations with them on envisaged or implemented project initiatives. Initiating the stakeholder engagement from the early stages of project design and iterating through its development and implementation allows to share and get ideas, consider experiences, knowledge, proposals of local people who will be beneficiaries of the project on one hand or may appear as people impacted from the project activities on the other hand. In both situations it is important that the project related information is disclosed to stakeholders, especially to the impacted ones and if the project supported initiatives may cause any social or environmental impact on them. The risk avoidance, minimization, reduction, or offset measures, as specified in the SESP documents, need to be introduced to stakeholders. Some people may not participate in ongoing consultations, but their rights need to be protected if any adverse impact may occur. With consideration of such situations, UNDP established corporate complaint or dispute resolution mechanism called the [Stakeholder Response Mechanism](#) (SRM), which will provide an additional, formal path for stakeholders to engage with UNDP expressing their concerns or grievances. The mechanism is channeled not only to express the complaints, but to provide/receive response and solutions. UNDP will put good effort to resolve existing concerns to the satisfaction of all parties and document results to ensure and promote accountability. During the PPG phase stakeholder engagement efforts, the PPG team had developed a two-pager summary on SES and SRM providing the links to access the respective documents and webpages where more detailed information is available. The channels of complaint submission are also provided. The information was shared with stakeholders at the end of consultation meetings, explaining the importance of their awareness on the availability of such a formal channel to express and protect the rights of any individual or group of people that can be even unintentionally impacted by the project activities.

## STAKEHOLDER ENGAGEMENT AND CONSULTATIONS

Starting from the project concept design stage, UNDP project development team initiated wide consultations with multiple stakeholders to present the philosophy of the project, its main objective, and core interventions. All line departments of the Ministry of Environment were consulted from the very early stages of the concept outlining, iterated during the PIF design, and more formally and intensively continues during the PPG phase. Most important consultation meetings/events conducted during the PPG phase are reflected here.

For more effective and disinterested involvement of beneficiaries and vulnerable groups in programs, the project team will explore the establishment of regional units to be involved in the implementation of the projects in Vayots Dzor and Gegharkunik regions, where active residents of target settlements and organizations representing the interests of vulnerable groups, local governments and territorial administrations, government agencies, CSOs, representatives of the business sector. The project team will also support the establishment of Local Advisory Groups (LAG) in each of the targeted communities, to support project activities.

### Information, dissemination, consultation and similar activities that took place during the at PIF and PPG stages

The project concept first was presented to GEF in July 2020 at the GEF National Dialogue event between the Ministry of Environment and GEF Secretariat. A very comprehensive and holistic concept of “Conservation and sustainable management of land resources and high value ecosystems in lake Sevan basin for multiple benefits” project was elaborated by UNDP Armenia Office from the very beginning adhering the project core idea to the national priorities and making it attractive for the GEF. Subsequent multiple consultation meetings were held with interested parties to discuss and agree on feasible ways of achieving the set objective, namely: - **to promote land degradation neutrality, restore and improve the use of land and water resources in Armenia’s Lake Sevan Basin to enhance the sustainability and resilience of livelihoods, biodiversity and globally significant ecosystems**, and outcomes as reflected in the Project Document, and learn on potential bottlenecks. The Government had follow-up consultations with the GEF Secretariat, and UNDP's idea was selected and the decision to proceed with UNDP was taken. The project will build on and complement the EU-funded “EU4Sevan” project on Ecosystem Restoration (2020-2024) and the GEF-funded FAO project on “Support to Implementation of Armenia’s LDN Commitments (2021-2024).

Starting from the PIF stage, UNDP team initiated wide consultations with multiple stakeholders to present the ideology of the project, main objective, and direction of core interventions. All line departments of the Ministry of Environment were consulted from the very early stages of the concept, iterated during the PIF design, and more formally and frequently during the PPG phase.

To ensure strong country ownership and compliance with stakeholder engagement requirements in line with the stakeholder engagement requirements outlined in UNDP’s [Social and Environmental Standards](#) (SES), the [SES Guidance Note of Stakeholder Engagement](#), the GEF’s [Guidelines on the Implementation of the Policy on Stakeholder Engagement and the GEF Policy on Gender Equality](#), the development of the project elements and ultimately the Project Documents performed during the GEF PPG phase, wide consultations and close engagement with many government institutions, local communities, CSOs, private business and enterprise representatives and other relevant stakeholders – in particular those who will benefit from and be directly involved in the implementation of the project (i.e. direct project beneficiaries) and those who may be impacted (positively or negatively) by the project were conducted.

### **PPG stage Stakeholder Consultation**

The Project PPG expert team was established in mid-January 2022 and promptly started consultations on selection of project sites in two marzes of Armenia – in Gegharkunik and Vayots Dzor. Taking into consideration that the project is designed with multi-focus programming directions corresponding to Biodiversity and Land Degradation GEF focal areas, the core logic of the discussions and site selection exercise was to identify mosaic landscapes with a variety of and use types, in areas/communities where there are significant degrees of land degradation in the production zones, in the proximity of critical habitats (KBAs/IBAs, PA, ecological corridors) and therefore higher degrees of LDN compatible SLM and land restoration potential expected to be achieved as

a result of demonstration activities to benefit biodiversity and soil productivity : e.g. improvement of soil condition and progress towards land degradation neutrality, sustainable management of pastures/grasslands and forests, efficient utilization of water and land resources on arable lands and improved critical habitat connectivity for the wildlife migration and improving biodiversity status within and outside Sevan Protected Area.

The site selection exercise at PPG stage was conducted with the involvement of a multi-disciplinary specialist team including experts on pastures/grasslands, LDN, forest, biodiversity and PAs/KBA/IBAs, hydrologist, economist, GIS, gender, eco-tourism and behavior change, as well as specialists from the WWF Armenia and the Ministry of Environment (GEF OFF; UNCCD, UNCBD, UNFCCC focal points). The feedback from other line ministries holding the agriculture and land governance portfolios was sought and integrated into discussions (the Ministry of Economy and the Ministry of Territorial Administration and Infrastructure respectively).

Several sessions were conducted for the selection of sites. For substantive discussions the initial preparatory stage was the acquisition of GIS structured data sets from the governmental and non-governmental official sources and development of an integral database for generation of shapefiles. GIS mapping and analysis has produced different profile maps (LDN indicator mapping results representing land degradation trends, KBA/IBA, irrigated lands, etc.) which were reviewed in each priority region (marz) observing the merger communities (i.e. new larger administrative structures formed as a result of the local amalgamation process), then the attributive data from database was crosschecked with statistics from official governmental regulatory sources (e.g. decrees) wherever necessary. The discussions led to the prioritization of 6 merger communities to be involved in the project activities. In the Gegharkunik marz 3 merger communities were proposed: Martuni, Vardenis and Shoghakat. In Vayots Dzor marz 3 other merger communities were proposed: Vayk, Jermuk and Yeghegis. All 6 selected merger communities are geographically bordering with each other (please see description of target landscape in Annex 16).

**Community/Local Advisory Groups - to continue facilitating stakeholders’ engagement during project implementation**

Based on the PPG discussions at local level, the project has assessed the interest of the local representatives in each community to participate in the project activity and be informed/consulted. Based on a general positive feedback and taking into consideration the project’s field/demonstration works, it is highly recommendable that



the project will establish the second-tier stakeholder coordination **Local Advisory explore establishing Local Advisory Groups (LAG)** at the each community level, to facilitate broad local participation and project ownership, to provide inputs to, and endorsement of the technical solutions proposed for implementation of activities and for the quality of the project outputs. These groups may include community municipality representative responsible for Agriculture and Environment, Pasture Management Cooperative, big and small farmers, private sector, academic/educational institutions, representatives of target communities, civil society and school representatives to provide guidance and technical advice on the project initiatives. The landscape approach will help to facilitate multi-stakeholder platforms where all of these different stakeholders and rights-holders can get together and talk about their shared objectives, or where there might have to be tradeoffs. Finding “synergies across different sectors,” as well as

common ground among stakeholders is crucial to achieving multiple outcomes.

The project area includes 6 consolidated communities: Sgoghakat, Vardenis, Martuni, Yeghegis, Vayk and Jermuk in two marzes (regions) Gegharkunik and Vayots Dzor, encompassing the Lake Sevan watershed and surrounding landscape (Fig.1). The community Yeghegnadzor will be considered during the Inception phase of the FSP implementation.



Community members from selected communities should form consultative community groups and be involved in the project activities. Under the public awareness and education component, it is planned to target both members of the general public and specific groups of society, including selected communities, youth women, local governments, NGOs, media, education institutions. During the inception phase of the project, the project will implement ample participatory consultations in all the targeted communities, including vulnerable community members, CSOs/NGOs and local government, and facilitate the establishment of the Local Advisory Groups and clarifications of their advisory role in the project.

### **Engaging and Addressing the Needs of Vulnerable Groups**

All project measures are directed to support conservation and sustainable management of biodiversity, water and land resources in Lake Sevan Basin area covering Gegharkunik and Vayots Dzor marzes (regions), to increase ecosystems and livelihoods resilience in a participatory and inclusive manner.

The [GEF Policy Guideline on Environmental and Social Safeguards](#) clearly specifies: *“disadvantaged or vulnerable groups or individuals means those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or indigenous status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the impacts of a project or program and/or more limited than others in their ability to take advantage of its benefits”.*

PPG experts have specified the following vulnerable and/or disadvantaged population groups/individuals, to be paid higher attention for more active efforts to engage and to benefit from the project. Those families can be categorized, having:

- a) War victims and wounded
- b) Many children (up to 8-10)
- c) No income and leaving on small allowances
- d) Disabled member
- e) Lonely old people
- f) Women lead household
- g) Refugees displaced from Nagorno Karabakh after the 2020 military hostilities

The Local Advisory Groups could facilitate/advise on the inclusion of socially vulnerable people of their community/settlement. In addition, the staff members of local Municipality and NGOs working in these local areas are well familiar with the socially vulnerable population in their district or even in a larger area, particularly those NGOs which are implementing social support projects. The presence of NGO representatives in the structure of LAG will counterbalance and at the same will supplement the municipality capacity, and choices of directing the project activities, as such increasing the transparency and accountability. Awareness and outreach, training and stakeholder engagement activities for disadvantaged and vulnerable individuals and groups within the program will consider factors such as group or individual sensitivities, to better formulate program activities that may require vulnerability-specific implementation. During the course of the project implementation the criteria of capturing project beneficiary population vulnerability aspects will be refined and adjusted.

## **STAKEHOLDERS ROLES IN THE PROJECT AND ENGAGEMENT MODALITY**

### **Plan for Stakeholder Engagement During the Project Implantation**

The purpose of the Stakeholder Engagement Plan is to:

- Develop partnerships with stakeholders
- Provide stakeholders with updates on the project

- Create an avenue for stakeholder feedback and knowledge sharing
- Fulfil the requirements of the GEF, UNDP and the National Government
- Help build knowledge and capacity within the stakeholder groups to effectively support the project implantation
- Provide a timeline of engagement activities and identify who will be responsible for their delivery.
- Facilitate stakeholder engagement in decision-making, advisory involvement

A variety of engagement methods (and technologies) will be employed as part of the engagement plan, including, but not limited to:

- ▲ PMB/PSC regular and ad hoc meetings
- ▲ Community consultation through regular and ad hoc meetings of LAGs and other structures, as needed
- ▲ Consultation, workshops, working groups, etc.
- ▲ Sharing of project implementation reports, notes, briefs, etc.
- ▲ Dissemination of audio-video materials, including videos, articles, blogs, newsletters, Board meeting minutes, other endorsed documents
- ▲ Twitter @UNDP-GEF Lake Sevan,
- ▲ Facebook
- ▲ Project resources/materials such as banners, billboards, brochures, presentations, and
- ▲ Press releases, TV and radio programs

Institution	Description/Role and engagement in the project
Ministry of Environment (MoE)	<p>The Ministry of Environment is responsible for environmental protection and rational use of natural resources, prevention or reduction of negative impact on air, waters, soil, flora and fauna, protected areas and forests, wetlands.</p> <p>The MoE will play a leading role in the Intersectoral Stakeholder Coordination Committee for LDN implementation in Lake Sevan (Component 1; Output 1.1.3), organization of Innovation Challenge for identification of biodiversity alternative financing sources, organization of awareness and training activities.</p> <p><b>MoE is the Implementing Partner</b> for this project and a key partner in promoting/advocating for formal approval of policy measures aiming at mainstreaming biodiversity into spatial and land use planning and improvement of Sevan National Park’s management.</p>
WWF Armenia	<p>Operational since 2002, WWF is implementing projects focused on development and strengthening Ecological network of Armenia, conservation and restoration of threatened species, mitigation and adaptation of climate change impact on forest ecosystems, introduction of economic mechanisms for alternative livelihood for local communities in order to promote sustainable use of natural resources.</p> <p>The WWF Armenia was selected by the Ministry of Environment (MoE), in consultation with UNDP CO, based on the following criteria: a) long-lasting experience with Protected Areas and biodiversity management; b) experience with wildlife population assessments and establishment of migration friendly corridors supported by the local communities; c) experience with the implementation of environmental incentives for biodiversity friendly agricultural practices around Key Biodiversity Areas (KBAs); d) successful record of implementing international donor funded projects. From this perspective, the WWF Armenia’s comparative advantage and internal capacities were acknowledged since the PIF stage and validated through HACT and PCAT assessments. Upon the project inception, the MoE in its</p>

	capacity as Implementing Partner (IP) of this project through its affiliated EPIU, will enter into an agreement with WWF Armenia, for the realization of the Component 2 and Output 3.1.4, based on a final validation and budget fine-tuning that will be further agreed between parties during the inception period.
Ministry of Economy	The Ministry of Economy is mandated with the development, implementation, coordination, and assessment of the results of economic policy, implementation of unified agrarian policy of the Government, technical and technological equipment of agriculture sector and introduction of innovative solutions, promotion of organic agriculture, development of agricultural cooperation. The Ministry of Economy is a key project partner in implementation of LDN and SLM measures.
Ministry of Territorial Administration and Infrastructure of the Republic of Armenia	Mandated with the increasing of performance efficiency of regional administrations and local self-governance bodies, development of recommendations on introduction of waste removal and sanitary cleanup system in compliance with international norms, development and implementation of state policy in energy and transport sectors. The Ministry is a key partner in implementation of LDN guided land use planning, review and approval of the plans.
Ministry of Emergency Situations (Rescue Service)	The Ministry coordinates its emergency services according to the law and serves to evacuate citizens in the context of emergency situations and during natural disasters. The project will organize joint trainings for the PA staff and some of the local communities' volunteer squads, on wildfire fighting in forest areas in Gegharkunik and Vayots Dzor regions. The fire-fighting trainings will be organized jointly with the Ministry of Emergency Situation's experts from the Fire and Rescue Squad.
The Water Committee	This is a public agency under the Ministry of Territorial Administration and Infrastructure, which develops and implements the policy of the government regarding the management and use of state-owned water management, and it will participate in the inter-sectoral coordination mechanism at Lake Sevan Basin landscape level, other working groups related to the development of integrated monitoring database in the Lake Sevan National Park and trainings.
Urban Development State Committee	Mandated with the development of "green urban development" principles, ensuring harmonic development of natural and cultural landscapes. The Urban Development Committee will participate in the LDN and spatial and land use planning meetings and working groups as well as trainings and awareness sessions.
State Committee of Real Estate Cadaster	Mandated with the land use data management, development of land policy, principles of management of land resources, development and implementation of geodesy and mapping project. The Cadaster Committee is a key partner in the implementation of LUP4LDN and LDN guided land use planning.
Statistical Committee of the Republic of Armenia	Mandated with the development, production and dissemination of official statistics according to the statistical programs. The Statistical Committee will be involved in Land use planning, socio economic and biodiversity data collection and analysis.
Environmental Protection and Mining Inspection Body of the Republic of Armenia	Mandated to ensure compliance with safety and legislative requirements related to nature protection and mining. Beneficiaries of trainings and awareness sessions.
Gegharkunik and Vayots Dzor Regional Administrations	Mandated with the implementation of territorial policy of the Government, coordination of activities of territorial units of executive institutions of the country. The regional authorities are key partners in LDN target setting, approval and implementation and monitoring. Beneficiaries of trainings and awareness sessions.
Committee of Forest of the Ministry of Environment of the Republic of Armenia (Chambarak and	Mandated to ensure sustainable management of state forests, including protection, reforestation, afforestation and efficient use. The local branches of Hayantar SNCO are key partners in the development and implementation of sustainable forest management plans and restoration of forest ecosystems. Beneficiaries of trainings and awareness.

Vayots Dzor branches of Hayantar SNCO)	
«Hydrometeorology and Monitoring Center» State Non-Commercial Organization	Mandated with the collection, analysis and protection of environmental and hydrometeorological data. The Center will participate in the project’s activities, climate change assessments and working groups, trainings.
“Sevan National Park” State Non-Commercial Organization	Mandated to ensure the normal process of development of aquatic and terrestrial ecosystems, protection of natural and historical monuments of Lake Sevan basin. The Park administration is a key partner for the implementation of the activities related to biodiversity in and around PA and community outreach. Beneficiary of training and awareness sessions.
Foundation for Restoration of Sevan Trout Stock and Development for Aquaculture	Mandated with the restoration of trout stock in Lake Sevan, establishing and development of Sevan trout production and realization value chains and related branches, solving of Lake Sevan problems, development of production and processing of aquaculture in Armenia, development of knowledge-based and innovative technologies.  The Foundation will support data collection and analysis on ichthyofauna of Lake Sevan and analysis of threats and impact and will support capacity building on sustainable fishing/aquaculture.
Caucasus Nature Fund (CNF)	CNF is a conservation trust fund created to safeguard the Caucasus ecoregion- one of the global biodiversity hotspots. It provides matching grants and technical assistance to protected areas in Armenia, Georgia and Azerbaijan, building capacities to sustain natural parks for future generations. Beneficiaries of training and awareness activities.
Local Self-Governance Bodies	These local authorities are in charge with monitoring the implementation of the environmental regulations, including promotion of environmental education, promotion of tourism, implementation of disaster risk reduction measures, waste removal and sanitary clean-up in communities. They are key partners in the development and implementation of pastures management plans, forest management plans, and agroforestry measures. Beneficiaries of training and awareness activities.
Local natural resource users groups	<ul style="list-style-type: none"> <li>• National Union of Farmers- regional branches</li> <li>• Gegharkunik Water Users Associations (Ghegarkunik region)</li> <li>• “Yeghegnadzor” Water Users’ Association (Vayots Dzor)</li> <li>• Project beneficiaries.</li> </ul>
Private sector	The project will work with the representatives of tourism/hospitality industry in Lake Sevan basin. The project will also focus on small livestock entrepreneurs and local agriculture producers, and other local small tourism entrepreneurs in targeted villages/municipalities. The project will work with financial institutions to encourage/promote green lending to support responsible and sustainable agriculture and tourism business models.  Project beneficiaries.
Financial Institutions	The project will work with the representatives of financial institutions (EBRD; ACBA Bank; FinBank; Inecobank) with portfolios in agriculture sector and tourism sector in order to ascertain the feasibility of piloting an agri-environmental payment scheme and explore operationalization options of such a mechanism for sustainable pasture management and financing biodiversity friendly agriculture practices.  Beneficiaries of training and awareness activities.
Center for Ecological-Noosphere Studies, National Academy of Sciences, RA	The Center is conducting various assessments: assessment of ecological status of territories, development of scientific and methodological fundamentals of risk analysis, optimization of natural resource management processes, solution of problems in the area of human ecology. It will be a key partner in promoting LDN guided land use planning, mainstreaming of biodiversity spatial elements into land use planning, roll-out of the LUP4LDN software for land use planning, setting up integrated monitoring data base at Lake Sevan National Park, monitoring of key species, trainings and data analysis.

Institute of Botany, National Academy of Sciences, RA	The Institute is in charge with inventories of flora, vegetation and plant resources of Armenia, development of principles for increasing the efficiency of main forest systems, importing and adaptation of vegetation and plant resources, study of dynamics of changes of vegetation of Armenia. The Institute will be a key partner in the assessments of palearctic grassland areas and management recommendations, as well as knowledge management, knowledge sharing, targeted research.
Scientific Center of Zoology and Hydroecology, National Academy of Sciences, RA	Studying of hydro- and terrestrial ecosystems of Armenia, biodiversity, taxonomy, morphology, ecology, ethology, evolution, genetics, zoogeography of invertebrate, vertebrate animals and parasitic fauna of animals. Assessment of bioresources, development of their conservation methods, restoration and sustainable use. The Institute will participate into species survey, management recommendations, as well as knowledge management, knowledge sharing, targeted research.
Armenian National Agrarian University	The University is in charge with the preparation of agrotechnology specialists capable to develop the food and agriculture system in the country with the help of their professional skills and through cooperation with the sector's stakeholders. The University will participate to surveys, analysis of biodiversity and land degradation assessments.
Gavar State University	Mandated with the provision of higher education, including in biology, nature protection and use, mapping and cadaster. The University will participate to surveys, analysis of biodiversity and land degradation assessments.
Media	Key partners of the organization of awareness raising dissemination of information on project activities.
NGOs	Participation in consultations, training and capacity building activities, development of local knowledge, implementation of project-related activities.
GIZ Armenia	Operational since 2002 in Armenia, the GIZ initiatives in Armenia are part of a strategic approach to support regional cooperation under the Caucasus Initiative in several areas: sustainable economic development, democracy and environmental governance.
Other International Organizations	Coordination and support to development of national policies related to conservation and sustainable management of land resources and high value ecosystems in Lake Sevan landscape.

The PPG phase project started its activity in the middle of January 2022. The first team meetings were devoted to a good understanding of each direction of the assignment, clarifying the intersecting issues, reaching agreements on teamwork arrangements. Also, in the beginning, the work was aimed at obtaining the necessary data. Target data necessary for the project, including on key biodiversity areas/ KBAs, important bird areas/IBAs, specially protected nature areas/PAs, areas with land prone to degradation, pastures and grasslands, forests, cultivated lands, were obtained from both national official sources (eg. relevant RA government decrees), and state bodies, such as the Water Committee, State Cadastre, and geographic information databases (GIS) of international partner organizations (WWF Armenia). The GIS specialist and director of the WWF Armenia office were directly involved in the process of selecting communities, using the GIS and state published data.

During the month of February 2022, as a result of a large number of discussions held on the zoom platform, the target areas and relevant communities of the project were selected by generating GIS maps. Interim meetings to provide information and receive opinions on the selection process were held with the National Focal Points of the relevant conventions of the RA Ministry of Environment, namely the Deputy Minister of Biodiversity Convention Coordinator Ms. Anna Mazmanyan, Coordinator of the Convention to Combat Desertification Ms. Narine Hakobyan, Head of the Specially Protected Areas and Biodiversity Policy Department Ms. Voskehat Grigoryan, and with other specialists. A summary on the sequential logical steps of the selection of target communities for the project and the selection result were officially submitted for the consideration and approval of the Ministry of Environment of the Republic of Armenia.

Immediately after sending the letter, on March 9, a meeting-discussion followed with the newly appointed Deputy Minister Mr. Meimaryan. UNDP team presented the main objective of the project, goals, expected cooperation, as well as the logic and result of the selection of the target communities of the project. The National Focal Point of the Convention to Combat Desertification, the head of the Specially Protected Areas and Biodiversity Policy Department also took part in this meeting.

On March 30, the head of the UNDP climate, environment, resilience portfolio and the PPG national team leader met with the director, deputy director, head of the Program Implementation and Monitoring Department, head of the Department of Cooperation with Donors of the RA Ministry of Environmental Protection Program Implementation Unit. During the meeting, the objectives of the project were detailed for the staff of the PIU, the selected target communities were presented, and the format of the national implementation of the project by the GRE was discussed.

In response to the UNDP report on the selection of target communities, the project was informed by a letter received from the Ministry of Environment on March 31 that the Ministry does not have any objections to the selection, however there was a suggestion to meet with the staff of the MoE and respective subordinated agencies for discussion and clarifications, if any question may come out. On the same day, UNDP representatives had a meeting with Mr. Ashot Giloyan, the head of the local self-government policy department of the RA Ministry of Territorial Administration and Infrastructure, and Yeghiazar Davtyan, a specialist in the department. The goals of the project were also presented, the expediency of choosing the target communities of the project, cooperation were discussed.

Days before all the meetings, UNDP team was electronically sharing with partners providing information materials on the project, the protocol on the selection of communities, as well as the approved Project Concept (PIF) document. Thanks to this, the meetings were more constructive and productive. The frequently asked question related to the activities to be carried out in each community, which was interpreted that the details according to the communities still need to be clarified as a result of the upcoming meetings with the communities, various specialists, and the population. This round of discussions presented above was summarized by the forum held on April 6 in the Ministry of Environment. Details of this meeting are presented below under the second meeting narrative. All the meetings held during the month of March led to a mutual understanding and agreement on the selection of communities. In parallel with these meetings, the PPG team also started meetings with the stakeholder organizations in target marzes, communities and settlements. Below are presented in detail all the basic consultation meetings including those at national and other institutional level, the issues discussed during them, the mutual agreements, received ideas and comments. From 14 mission visits to marzes/communities/settlement, only four major meetings/consultations are presented here. Below minutes present key meetings conducted during the PPG with wide involvement of different stakeholders. Many electronic and telephone communications are not recorded, but were used in consultations of all directions, with all levels of stakeholder.

## Workshop with "Sevan" National Park (SNP) staff

<b>Date:</b>	March 11, 2022	
<b>Agenda:</b>	<ul style="list-style-type: none"> <li>✓ Project presentation</li> <li>✓ Discuss the METT assessment tool (Management Effectiveness Tracking Tool) and complete it with SNP staff</li> </ul>	
<b>Venue:</b>	"Sevan" National Park	
<b>Participants:</b>	1. Arman Abelyan	Director of "Sevan" National Park
	2. Artak Sargsyan	Senior Superintendent of Rapid Response Unit
	3. Herbert Vardanyan	Hydro-ecologist
	4. Araik Hunanyan	Head of Science, Monitoring and Cadastre Department
	5. Sasun Galstyan	Senior forester
	6. Karen Jenterejian	UNDP expert
	7. Gayane Gharagebakyan	UNDP, National Team Leader
<b>Consultation Purpose:</b>	UNDP presented the main goals of the project, the expected results, and the outline of the planned activities during the five years of the project to the SDP staff. The METT self-assessment tool was then discussed and filled out point by point with the SAP staff.	
<b>Consultation Outcome:</b>	<ol style="list-style-type: none"> <li>1) The staff of "Sevan" National Park was informed about the objective and main directions that will be covered by the project</li> <li>2) The total evaluation index of "Sevan" National Park with completed METT is 37 points</li> <li>3) Selected animal species for monitoring</li> </ol>	

The March 11 meeting was preceded by a series of telephone conversations-discussions with Mr. Arayik Hunanyan (who coordinated the transfer of this communication to other SNP personnel, including informed the director of SNP). During these call-discussions the structure of the project, the envisaged plans related to SNP,



and the scope of cooperation were presented. At the current meeting, the METT tool was introduced and parsed in detail, explained how it evaluates the effectiveness of the management of the protected area and provides an opportunity to monitor the progress. The METT tool was electronically sent to Mr. Hunanyan in advance, along with the brief description of the project, and a list of plant and animal species pre-selected by the project preparation team (PPG), to be finalized through further discussions with the SNP and serve as the main indicators of the biodiversity monitoring program.

Provision of relevant materials in advance and remote discussions helped to complete the METT tool and discuss the indicators in detail during this one meeting. After the current meeting, the species were again discussed within the SNP staff, and the list of final indicators acceptable to them was provided to the project.

### Workshop at Ministry of Environment (MoE)

<b>Date:</b>	April 6, 2022	
<b>Agenda:</b>	<ul style="list-style-type: none"> <li>✓ Presentation of the project, selection of target communities of the project, question and answer</li> <li>✓ Receiving suggestions and feedback</li> </ul>	
<b>Venue:</b>	RA Ministry of Environment hall and online connection	
<b>Participants:</b>	1. Sergo Atanesyan	First Deputy Chairman of the Forestry Committee
	2. Vardan Karyan	Head of the Department of Soil, Bottom Sediment and Hydrobiological Monitoring
	3. Hayk Minasyan	Senior Hydromet Specialist
	4. Arman Shahnubaryan	Deputy Head of Water Resources Management Department
	5. Ani Khachatryan	Department of Land and Subsoil Policy
	6. Liana Alikhanyan	Department of Water Policy
	7. Inessa Zargaryan	Department of Forest Policy
	8. Voskehat Grigoryan	Head of the Specially Protected Areas and Biodiversity Policy Department
	9. Lusine Avetisyan	Head of the Strategic Policy Department
	10. Arpine Panoyan	Legal advisor
	11. Nona Badoyan	Head of Climate Policy Department
	12. Ani Khachaturyan	Senior Specialist of the Department of International Cooperation
	13. Arthur Gevorgyan	Senior Specialist of the Department of Forestry Policy
	14. Yeghiazar Davtyan	Senior Specialist of the Department of Local Self-Government, TKEN
	15. Harutyun Daveyan	Ministry of Economy
	Plus 10 persons from PIU, WWF Armenia, UNDP coordinators and experts connected through the zoon platform	
<b>Consultation Purpose:</b>	<p>The PPG team experts presented the main goals and directions of the project, the selected communities, and the expected cooperation. The important of SLM compatible LDN measures, the integrated and spatial landscapes approach was highlighted.</p> <ul style="list-style-type: none"> <li>✓ As a priority issue, the experts of the National Science and Technology Center drew the attention of the participants to the negative trends in biodiversity, ecosystems, and natural resources in general, as a result of human activity and climate change, the reduction of plant and animal species, and in some cases their elimination. The tendency of vertebrae degradation was specially emphasized. Maps showing the locations of land degradation generated by the team's GIS specialist were presented for objective visualization of the problem.</li> <li>✓ It was emphasized that the aim of the project is to improve agricultural practices, with the sustainable management of natural resources and in some cases, the introduction of new models of alternative activities (especially in the areas adjacent to protected areas in order to reduce human pressure on nature), which should support and contribute to the preservation of ecosystems and biodiversity. The presented ideas were welcomed by the participants, at the same time it was presented that the transition to new practices, no matter how attractive it is, will require a lot of effort, time, knowledge, financial resources, appropriate management levers.</li> </ul> <p>While presenting their thematic part, almost every one of the experts of the NDP emphasized that the program will primarily emphasize the inclusion of vulnerable groups of the population: disabled people, single women, families with lost or wounded soldiers, people temporarily resettled from Nagorno Karabakh, and others, as beneficiaries of the program's activities.</p>	
<b>Consultation Outcome:</b>	<ol style="list-style-type: none"> <li>1) Participants of the meeting welcomed the goals and tasks of the project.</li> <li>2) Some participants were not aware of the details of the selection of communities, further explanation was given</li> <li>3) They asked to provide the project concept document (PIF) again, and to continue providing information on the results of the visits to the communities.</li> <li>4) Partners suggested that the personnel of line Ministries also participate in the fact finding and stakeholder consultation/engagement visits to marzes and communities.</li> </ol>	



**Visit to Vayots Dzor marz, meetings at the marzpetaran/regional governorate office and Yeghegis community administrative center in Shatin**

<b>Date:</b>	April 15, 2022	
<b>Agenda:</b>	<ul style="list-style-type: none"> <li>▲ Project presentation</li> <li>▲ Receiving suggestions and feedback</li> </ul>	
<b>Venue:</b>	Vayots Dzor marzpetaran and Shatin administrative center of Yeghegis community	
<b>Participants:</b>	1. Ararat Grigoryan	Governor/Marzpet of Vayots Dzor
	2. DavidSargsyan	Deputy Governor of Vayots Dzor
	3. Arsen Karapetyan	Secretary General of the Vayots Dzor marz marzpetaran
	4. Armen Davtyan	Marzpet's Advisor
	5. Gegham Margaryan	Vayots Dzor marzpetaran – head of agriculture and environment protection department
	6. Ashot Ghazaryan	Forestry of Vayots Dzor
	7. Mher Nikoghosyan	Forestry of Vayots Dzor
	8. Gohar Khachatryan	Vayots Dzor marzpetaran
	9. Anna Simonyan	Vayots Dzor marzpetaran
	10. Hasmik Avetisyan	Vayots Dzor marzpetaran
	11. Garnik Gevorgyan	Head of agriculture and environment protection department of Vayk community
	12. Hayk Avagyan	First Deputy Mayor of Vayk community
	13. Hazarapet Nazaryan	Director of "Yeghegnadzor" WUA (Water User Association)
	14. Vardan Avagyan	First Deputy Mayor of Yeghegnadzor community
	15. Garnik Khachatryan	Assistant to the Head of Yeghegnadzor community
	16. Davit Ohanyan	Yeghegis community
	17. Mamiko Smbatyan	Chairperson of Shatin Cooperative
	18. Bagrat Simonyan	PACC of Rind settlement (Pastureusers association consumer cooperative - PACC)
	19. Roman Arakelyan	PACC of Karmrashen community
	20. Armen Hakobyan	Coordinator of the CARMAC II project in Vayots Dzor region
	21. Tigran Gasparyan	PACC of Saravan settlement
	22. Arman Harutyunyan	PACC of Areni settlement
	23. Aharon Gabrielyan	PACC of Aghnjadzor settlement
	24. Nairi Saroyan	Vayots Dzor marzpetaran
	25. Sergey Khlgatyan	Vayots Dzor marzpetaran
	26. Aram Simonyan	Yeghegis community
	27. Gevorg Manaseryan	Vayots Dzor marzpetaran
	28. Hrachya Hovhannisyan	Vayots Dzor marzpetaran
	<b>Shatin</b>	
	29. Martin Sargsyan	Administration Head of Sally settlement
	30. Simak Khudoyan	Administrative Head of Aghnjadzor settlement
	31. Anna Danielyan	Administrative assistant to Yeghegis Mayor

	32. Manvel Abrahamyan	Administrative Head of Karaglukh settlement
	33. Ruben Voskanyan	Accountant of Yeghegis
	34. Artash Artashyan	Leading Specialist of Yeghegis Administration
	35. Andreas Martirosyan	Responsible for municipal waste collection of Yeghegis community
	36. Lusine Hakhversyan	Clerk of Yeghegis Municipality
	37. Aram Simonyan	Specialist in the agriculture of Yeghegis settlement
	38. Gegham Margaryan	Head of agriculture and environment protection department, Vayots Dzor marzpetaran
	39. Vardanush Yeghoyan	A second-grade specialist in the Sally community
<b>Consultation Purpose:</b> <sup>57</sup>	<p>The PPG team experts presented the main goals and directions of the project, the selected communities, and the expected cooperation arrangements. The important of SLM compatible LDN measures, the integrated landscapes approach was highlighted.</p> <ol style="list-style-type: none"> <li>1. As a priority issue, the experts of the PPG team drew the attention of the participants to the negative trends in biodiversity, ecosystems, and natural resources in general, under the pressure of human activity and climate change, the vulnerability of plant and animal species, and in some cases their extinction. The tendency of land degradation was specially emphasized. Maps showing the locations of land degradation generated by the team's GIS specialist were presented for objective visualization of the problem.</li> <li>2. It was emphasized that the aim of the project is to improve agricultural practices, with the sustainable management of natural resources and in some cases, the introduction of new models of alternative activities (especially in the areas adjacent to protected areas in order to reduce human pressure on nature), which should support and contribute to the preservation of ecosystems and biodiversity. The presented ideas were welcomed by the participants, at the same time it was presented that the transition to new practices, no matter how attractive it is, will require a lot of effort, time, knowledge, financial resources, appropriate management levers.</li> <li>3. While presenting their thematic parts, almost every PPG team expert emphasized that the project will primarily highlight the inclusion of vulnerable groups of the population: disabled people, single women, families with lost or wounded soldiers, people temporarily resettled from Nagorno Karabakh, and others, as beneficiaries of the program's activities.</li> </ol>	
<b>Consultation Outcome:</b>	<ol style="list-style-type: none"> <li>1) All participants welcomed the objective of the project and the solution to overcome the identified problems, expressed their willingness to support and participate in the interventions of the project.</li> <li>2) Vayots Dzor marz is rich with water resources, at the same time, due to its vulnerable ecosystems and arid climate, it is more sensitive to climate change impact. Most of the attendees emphasized the inefficient use of water resources and the large volume losses as a result of inefficient operation or no actions to prevent.</li> <li>3) The great damage to the ecosystems of water bodies and surrounding areas caused by the operation of hydropower plants built on many rivers was highlighted.</li> <li>4) Human-wildlife conflict was raised, bearing in mind the large number of cases when grizzly bears harmed or even attacked people, domestic animals, agricultural objects - gardens, beehives - and caused great damage.</li> <li>5) The unfavorable condition of large areas of pastures and the need to improve them were highlighted</li> </ol>	

<sup>57</sup>Presentation of the project with the same structure and content was carried out in the introduction of all general meetings, and from now on, the same will not be repeated in other meetings, but a reference will be given to this meeting.

The group of PPG experts met with the Governor/Marzpeta of Vayots Dzor with the participation of his deputy and other staff officials and specialists. The materials provided in advance by the UNDP team were distributed and reviewed in detail by many of marzpetaran staff.



The meeting continued in the big hall of the marzpetaran, where representatives of various communities and different sectors were present. Marzpet himself opened the discussion, presented the main goal and tasks of the project, welcomed the

implementation of such a project and the importance of bringing the environmental challenges on agenda and the new opportunity to provide comprehensive and innovative solutions.

It was impressive that all the participants in their speeches were very well versed in the situation and statistical bases of the issues raised by them. In particular, it was important that the head of the department of agriculture and environmental protection of marzpetaran was well aware of the problems in the region. He will act as one key stakeholder for the project implementation.

**Community amalgamation: strengths and weaknesses for the project.**



Reference was made to the ongoing process of merging settlements (villages and

towns) in one extended community acting as one administrative unit. The latter offers both positive solutions and new challenges that still need clarification and effective solutions. There are problems that have not yet been clarified both at the level of the merger communities and the marzpetaran, how the new management, distribution of functions, etc. should be implemented. On the one hand, this gives the project a good opportunity to offer integrated landscape solutions, yet, due to the same reasons a slowdown of processes is not excluded. The situation will depend on when the amalgamation of any given community was carried out, and whether the management and administrative apparatus, functions are already clearly operational. However, since the activities of the project involve maximum harmonization, integrated solutions, regardless of the administrative boundaries of settlements, enlarged communities are the most favorable structure for effective and integrated management models for PAs, pastures, forests, water resources.

The next round of discussion held the same day in Sally settlement highlighted the existence of similar problems raised in the marzpetaran in the 12 settlements that are part of the merger Yeghegis community. It is noteworthy that the damage caused by the bears was especially manifested in this community. The problem needs a

"Conservation and sustainable management of land resources and high value ecosystems in Lake Sevan Basin for multiple benefits"  
 Stakeholder consultation meeting at Vayots Dzor marzpetaran on GEF Lake Sevan project measures  
 15 April 2022  
 Participants:

	Name, Surname	Organization	Signature
1	Արմենյան Նիկոլ	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
2	Գրիգորյան Վահագն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
3	Բախչյան Կարապետյան	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
4	Չևրեցի Վահագնյան	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
5	Խաչատրյան Թեոֆիլ	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
6	Պետրոսյան Գևորգյան	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
7	Քարամյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
8	Բախչյան Կարապետյան	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
9	Սարգսյան Լուսինե	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
10	Բախչյան Կարապետյան	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
11	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
12	Վանյան Արմենյան	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
13	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
14	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
15	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
16	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
17	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
18	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
21	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
22	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
23	Մանուկյան Կարեն	Հայաստանի Հանրապետության Զբոսաշրջության նախարարություն	[Signature]
4			

professional assessment and proposal of solutions, how to prevent cases, and if they happen, how to compensate those who have suffered. Yeghegis community is more important for the project by including Hors, Sali, Karaglukh, Aghnjadzor areas, which are part of the Vayots Dzor section of the eco-corridor of the South-East Lesser Caucasus.

**Recommendations:**

1) Pastures. The head of the Department of Agriculture and Environmental Protection of the marzeptaran proposed to include in the program the additional area between Yeghegis and Vayk communities from the Yeghegnadzor community (not selected as a project target), in the red circle mentioned below, within the framework of the implementation of the sustainable pasture management regime. In fact, from the point of view of ensuring spatial continuity of pastures between Yeghegis and Vaik communities, the proposal was sound.



At the same time, taking into account that all the targets of the project, and especially the indicator of 150,000 hectares of introducing sustainable pasture management regime, is already a very ambitious indicator, the project offered to accept the proposal, on the condition that it will be considered at the beginning of the implementation of the full-sized project, while carrying out an additional assessments. Perhaps in some border areas of the Vardenis merger community parts of pastures and grasslands (which are under the control of the firing range of the neighboring country's military units during the period of the PPG) should be canceled and instead 5,000 - 7,000 hectares of land in Yeghegnadzor community may be included in the project, according to the part highlighted in the picture.

2) Irrigation. Meeting participants noted the pronounced impact of climate change on the region, particularly bringing to the increase in forest fires. Back in August 2017, about 670

hectares of area, of which 320 hectares were covered by forest, caught fire in the mountains near the Artavan settlement of Vayk community. Participants of the discussion proposed to observe the blown part of the Artavan forest within the framework of forest restoration works under the project. The representative of forestry informed that state programs are under planning at the period of PPG and will be implemented in that direction. The projects involvement and potential support in that intervention will greatly extend the achievement of a tangible result in that biodiversity-rich area, and in the presence of irrigation water, the volume of cultivated land will expand, a new source of income and employment will increase for the population of nearby settlements.

3) Engaging women. While preparing the above-mentioned meetings in Vayots Dzor, the PPG team asked in an invitation letter to ensure the possible active participation of women. It's noted with regret that in these two meetings, among the large number of participants, out of 39 people, only 6 women took part in the discussions. It is true that there were women who gave active speeches during both meetings, however, this and the following community meetings confirmed that the project should pay special attention to increasing

the role of women, their participation, both in terms of making decisions on the project's activities and participating in the implementation of activities as beneficiaries.

The PPG team sees the solution to this observed issue the active involvement of Non-Governmental Organizations (NGOs) and community schools in various processes of project implementation, including in decision making, coordination, etc. In both of these organizations/institutional units, they have a high potential of awareness on the needs of their communities/population, on surrounding environment, on resources that they use more often for the household needs. Mostly women have a dominant role, and they have a great willingness to play an active role in issues related to the community and the population within the scope of their mandate. Taking into account this potential, it was suggested to include representatives of NGOs and schools in the coordinating advisory groups at the community level.

### Visit to Gegharkunik marz, meetings in marzpetan and Martuni community

<b>Date:</b>	April 21, 2022	
<b>Agenda:</b>	<ul style="list-style-type: none"> <li>▲ Project presentation</li> <li>▲ Receiving suggestions and feedback</li> </ul>	
<b>Venue:</b>	Gegharkunik marzpetaran and Martuni community	
<b>Participants:</b>	1. Martin Petrosyan	Head of Agriculture and Environment Protection Department, Gegharkunik marzpetaran
	2. Marat Ghurshudyan	Head of Land-Construction and Land-Use Department of Gegharkunik marzpetaran
	<b>Martuni community</b>	
	3. Vahagn Davtyan	First Deputy Head of Martuni community
	4. Marzpetuni Manukyan	Adviser to the Head of the Martuni community
	5. Harutyun Harutyunyan	Head of Agriculture and Environment Protection Department, Martuni Administration
	6. Papin Sirakanyan	Co-owner of "Vardadzor" livestock farm
	7. Armenak Sirakanyan	Co-owner of "Vardadzor" livestock farm
	8. Hrach Mkrtychyan	Responsible for Gegharkunik WUA
	9. Hakob Mnatsakanyan	Head of the Department of Urban Development and Land Development, Martuni Administration
	10. Tatul Davtyan	Head of the Financial Department, Martuni Administration
<b>Consultation Purpose:</b>	<p>The PPG experts presented the main goals and directions of the project, the selected communities, and the expected cooperation. The important of SLM compatible LDN measures, the integrated landscapes approach was highlighted.</p> <p>The details of the presentation of the program are the same as the narrative of the April 15 meeting of Vayots Dzor.</p>	
<b>Consultation Outcome:</b>	<ol style="list-style-type: none"> <li>1) All the participants welcomed the goals of the project and proposed solutions to the problems, expressed their willingness to support and participate in the interventions of the project.</li> <li>2) The head of the Department of Agriculture and Environmental Protection of the marzpetaran mentioned the impossibility of using pastures and grasslands of Vardenis community bordering areas as a priority problem, linked to violation of safety of village population using the pastures and grasslands for their livestock.</li> <li>3) The importance of purposeful and effective management of Sevan National Park was noted.</li> </ol>	





### **Discussion main topics**

Border areas and risks. It was considered necessary to pay special attention to the selected pastures and grasslands for demonstration activities, that are adjacent to the eastern border of the Vardenis community (state borders of Armenia with Azerbaijan), taking into account the military flare-ups at the border with Azerbaijan. These selected areas coincide with the Vardenis area of the eco-corridor of the South-East Lesser Caucasus. All the stakeholders agreed that the project team will re-assess the situation at the time of project inception, and an appropriate decision will be made on the

management of around **30,000** hectares of pastures and grasslands earlier used by the population of adjacent communities, now abandoned due to proximity to the conflict area. Similar areas will be necessary to be selected in other locations further away from the border.

Sources of income of the population. The socio-economic condition of the population, employment, earning opportunities are an important prerequisite for the great pressure on natural resources due to human activity. In the past (still in Soviet times) many communities of Gegharkunik marz had production capacities, almost all of which no longer exist. In the previous years, the inefficient management and consumption of natural resources aggravated the environmental and biodiversity problems. There is a lot of pressure on the fish stocks of Lake Sevan. The state has introduced some regulations, but the problem of poaching still does not have a comprehensive and final solution.

Land degradation. In the communities of Martuni and Vardenis selected by the project, the land degradation trends are already quite significant. Many areas of communal pastures do not meet the required grazing standards. Large areas of cultivated land are deprived of irrigation water supply due to the deterioration of hydro-technical structures.

Problems of Lake Sevan. The anthropogenic and climate-induced environmental problems of Lake Sevan have worsened. Increasing the awareness of the population about the smart use of their surrounding environment and natural resources was of utmost importance.

Sevan National Park. Improving the capabilities of the Sevan National Park will contribute to a more effective solution to the problems of Lake Sevan.

### **Meeting at the Martuni town- hall.**

The meeting at the marzpet's office was followed by a meeting at the Martuni community hall. A very interesting and important discussion took place with the owners of a large local livestock farm. The ideology of the agro-payments scheme was presented by the PPG team. It was considered an acceptable approach, provided that if the implementation mechanism is tested, all elements of the scheme are well developed as a result, as many parties will be important actors in the scheme and in its supporting mechanisms.



### Workshop at the Ministry of Economy (MinEconomy)

<b>Date:</b>	May 19, 2022	
<b>Agenda:</b>	▲ Agro-environmental payment scheme and mechanisms	
<b>Venue:</b>	Hall of the Ministry of Economy of the Republic of Armenia	
<b>Participants:</b>	1. Ira Panosyan	Head of Department of Development of Agricultural Programs, Resource Utilization and Cooperation
	2. Harutyun Daveyan	Senior Specialist of the Department of Development of Agricultural Programs, Resource Utilization and Cooperation
	3. Yehiazar Davtyan	Senior Specialist of Local Self-Government Department / Ministry of Territorial Administration and Infrastructures - MTAI
	4. Ashot Khoyetsyan	Advisor to the Minister / MTAI
	5. Hakob Martirosyan	Senior Specialist of the Department of Special Nature Protected Areas and Biodiversity Policy / Ministry of Environment
	6. Hovhannes Ghazaryan	Head of the UNDP CER Portfolio
	7. Gayane Gharagebakyan	PPG National team Leader
	8. Gagik Tovmasyan	PPG Expert
	9. Anastas Aghazaryan	PPG Expert
<b>Consultation Purpose</b>	The purpose of the meeting was to discuss the Agri-environmental payment scheme in Armenian conditions, how it can be launched and introduced, what role the RA Ministry of Economy can play in this scheme.	
<b>Consultation Outcome</b>	<p>1) The representative of the MinEconomy proposed to continue the discussions, bearing in mind that communities are responsible for pastures, so they should also be considered as responsible and investing parties for the improvement of degraded pastures</p> <p>2) Within the framework of the existing programs, the Ministry of Economy/Agriculture does not have programs supporting the sustainable management and utilization of pastures</p>	

#### It was suggested to continue consultations with the Min Economy and other interested parties, first:

- to better understand all the elements of proposed Agri-environmental payment scheme
- the role of different parties in it, interlinks, deadlines, scales, etc.
- It was considered the need to develop an evaluation tool, through which it is understood what economic and environmental results the investments made for the improvement of pastures can have.

#### UNDP emphasized that participation of the Min Economy with an “investor” role in the scheme is very important and that will ensure:

- ✓ Demonstrating the need to improve the condition of pastures, which make up 57% of agricultural lands, as a priority of national policy, thus
- ✓ Will promote the opportunity of involving private capital investments
- ✓ It will support communities and large livestock business owners to plan, organize and implement evidence-based scientifically-proven interventions/actions, guaranteeing better outcomes, and minimizing the risks
- ✓ Considering the measures directed to improving pastures/grasslands status in the context of overall sustainable rangeland management
- ✓ It was suggested that the MinEconomy will discuss internally the possibility of extending the subsidy programmes directed to support agriculture development to include also articles for pastures improvement



### Workshop with banks and micro-credit organizations

<b>Date:</b>	June 22, 2022	
<b>Agenda:</b>	▲ Agro-environmental payment scheme, mechanisms, crediting possibilities	
<b>Venue:</b>	UNDP conference hall	
<b>Participants:</b>	1. Ira Panosyan	Head of Department of Development of Agricultural Programs, Resource Utilization and Cooperation
	2. Narine Hakobyan	Senior Specialist of the Land and Underground Resources Policy Department, CCD national focal point / Ministry of Environment/MoE
	3. Hakob Martirosyan	Senior Specialist of the Department of Special Nature Protected Areas and Biodiversity Policy / Ministry of Environment
	4. Mary Harutyunyan	Senior Specialist of the Strategic Policy Department / MoE
	5. Yehiazar Davtyan	Senior Specialist of Local Self-Government Department / MTAI
	6. Gagik Israelyan	"Converse Bank" CJSC
	7. Aram Mkhitarian	Agroleasing LVC LLC
	8. Vachik Danielyan	Armenian Economy JSC
	9. Hayk Bagratuni	Armenian Business Bank CJSC / "Agro-Credit"
	10. Marine Afyan	Armenian Business Bank CJSC / "Agro-Credit"
	11. Karen Petrosyan	Credit Concept
	12. Aram Ghukasyan	"GLOBAL CREDIT" UVC CJSC
	13. Sergey Gasparyan	FAST CREDIT CAPITAL UVC CJSC
	14. Sona Suvaryan	FAST CREDIT CAPITAL UVC CJSC
	15. Mushegh Petrosyan	Farm Credit Armenia UVC JSC
	16. David Shushanyan	Unibank
	17. Vardan Sargsyan	AKBA Bank
	18. Mkhitar Azatyan	Agro-Credit Card
	19. Edgar Galstyan	ANIV
	20. Lilith Gharayan	ADWISE Consultancy Company
	21. Hovhannes Ghazaryan	Head of the UNDP CER Portfolio
	22. Gayane Gharagebakyan	PPG national Team Leader
	23. Gagik Tovmasyan	PPG Expert
	24. Vahagn Voskanyan	UNDP economist
	25. Karen Jenterejian	PPG Expert
	26. Nune Sakanyan	PPG Expert
<b>Consultation purpose:</b>	The possibility of cooperation between the project initiatives and financial organizations and their participation in the new scheme of Agri-environmental payment scheme was discussed. The format, necessary conditions and prerequisites, existing obstacles and ways to overcome them were brought out, discussed and potential solutions proposed.	
<b>Consultation outcome:</b>	All participating organizations had experience in implementing agricultural projects. They listed a number of preconditions, in the presence of which they will be practically interested participate in the Agri-environmental payment scheme aimed at improving pastures conditions.	





The participants mentioned a number of preconditions necessary for lending, such as:

- Provision of additional targeted credit resources by the state to be allocated under the framework of this project activities.
- Training and awareness raising activities for beneficiaries.
- Involvement and active participation of professional-consulting structures or expert-consultants.
- Inclusion of accountability mechanisms in the case of counseling provided to communities, pasture user cooperatives, or any other initiator of pastures' improvement works.
- Availability of state loan-guarantees, co-financing, subsidy, insurance and other guarantees.
- Risk assessment and implementation of risk insurance mechanisms.
- Improving the legislation on the management and leasing of natural fodder farms (terms of lease, rate of lease fee, etc.).
- Development and implementation of pasture management plans.
- Formation of professional structural unit and specialist positions in communities.
- Development and implementation of key performance indicators.

Detailed Minutes of the meeting with the finance sector is below.

## MINUTES

*of the meeting with representatives of financial institutions (banks and credit organizations) and representatives of the Ministries of Environment, Territorial Administration and Infrastructure, and Economy, as well as PPG expert team of the "Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits" UNDP/GEF PPG Phase Project*

**Date and venue of the meeting:** The meeting took place on 22 June 2022, in the UNDP office

### Purpose of the meeting

A new agricultural payment scheme is planned to be introduced within the framework of the project, to support farmers to access affordable financial resources for sustainable management of pastures and grasslands. Participants of the meeting discussed the opportunities of cooperation between the Project and the financial institutions and of their participation in the new agricultural payment scheme, as well as the format of participation, the necessary conditions and prerequisites, the existing obstacles, and the ways to overcome them.

**Participants** (the list is attached):

Organization	# of participants
<b>Banks and credit organizations</b>	14
<b>Consulting firm</b>	1
<b>RA Ministry of Environment</b>	3
<b>RA Ministry of Territorial Administration and Infrastructure</b>	1
<b>RA Ministry of Economy</b>	1
<b>Project coordinators and experts</b>	6

### Meeting agenda / issues discussed

1. Presentation of the "Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits" Project
2. Presentation of the agricultural-environmental payments as a new financing scheme planned/designed within the project
3. Discussion of opportunities for cooperation with financial institutions
4. Questions and answers

**Presentations:** Manager of UNDP CER Portfolio Hovhannes Ghazaryan briefly introduced the structure, main objective, and planned activities of the "Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits" UNDP/GEF Project. Project PPG stage National Team Leader Gayane Gharagebakyan gave more details about the project and sustainable management of pastures in Armenia as well as the planned agri-environmental payment scheme directed at the improvement of degraded pastures. Project consultant Gagik Tovmasyan gave expert information about the current state of pastures and proposed activities.

**About the project:** the speakers presented the main activities of the project, the objectives, the targets, the current state of natural pastures, and the project expected results.

In particular, they spoke about the economic, social, and environmental significance of the pasturelands of Armenia, their actual state and tendencies /degrees and reasons for degradation, and the prerequisites and criteria of selection of the Lake Sevan basin and target communities within the project.

They underlined the urgent need for preventing the deterioration of natural pasturelands which is possible through efficient management, improvements, and thorough restoration.

Further, the need for cooperation between the Project and the financial institutions was clarified which is depends on the current state of pasturelands management and animal husbandry, and lack of financial resources.

On the one hand, the state and the communities currently do not have enough funds for the restoration and sustainable management of natural pastures. On the other hand, animal husbandry is not yet profitable for households, which explains why, in the entire post-independence era, attempts were made in different marzes of Armenia to solve pasture problems through international grant/support programs. The non-profitability of animal husbandry is explained by species composition of livestock, animal productivity (milk and meat yield, etc.), fodder supplies, and sale prices.

Mr. Tovmasyan highlighted the importance of cooperating with financial institutions which will not only constitute huge support to project implementation but also create a new business culture in the sector of Public-Private Partnership.

**Question 1.** How much investment is needed?

**Answer:** On average, up to AMD 200,000 is needed for improvement activities on 1 ha area, depending on the level of degradation.

**Business model:** UNDP economist Vahagn Voskanyan introduced the business model of the new financial scheme of the project.

He introduced the size of one unit of degraded area, improvement activities, and necessary investments.

Three value chains were proposed: from the simple (cultivation of fodder crops) to the complex (increase in the number of animals, increase in milk yield and improvement of milk quality), cheese production and sale value chain.

For each value chain, the expert introduced the investments, the payback period, the general profitability, and profitability per 1 ha, as well as the loaning and loan return process.

In conclusion, he once again stressed that the cost-effectiveness model of the new financing scheme is based on the principles of adding value by improving the degraded areas, generating additional profit, and ensuring business continuity.

## **Discussion**

The Moderator proposed to start the discussion by looking upon the proposed financing scheme as a Business case and to discuss who can be the borrower.

### Agro-Credit Card

1. Indeed, the main issue is who will be the borrower. The company has previous experience working with Pasture user cooperatives and they are not satisfied. The cooperatives bring together people gathered around one person, and the owner of the land is the community. The cooperative leases the land from the community, so, with whom the loan agreement will be signed?
2. They do not have previous experience cooperating with and loaning to the communities. They think that loaning to the communities is not realistic and will not produce positive results.
3. It is preferable to deal with existing Pasture user cooperatives that lease the land from the community and are interested in the positive outcome of the project.
4. The beneficiary has to be the enterprise who has real economic interest in land improvement. Clear definition of business interests is very important.

### **Converse bank**

1. They have previous experience loaning to an individual farmer who confessed that for years he failed to improve his own pastures, despite involving different experts. The farmer changed the direction of his

business and started producing hydroponic fodder and is quite pleased with the results of the new line of activity. Per this case the speaker proposed to consider maybe also changing the direction from pasture improvement to hydroponic fodder production.

2. Mr. Tovmasyan answered that we cannot generalize the impossibility of pasture improvement based on just one case and one farmer. Besides, he added that the production of hydroponic fodder has its own risks.

#### **“Aniv” credit organization**

1. They have never dealt with loaning for pastureland improvement. Their impression is that the state and the community can't fulfil their functions as owners and instead propose financial institutions to work in their place.
2. The experts clarified that the impression is not correct, and no one is aiming to fulfil the functions of the state. The objective of the project is to support the farmers in using pasturelands more efficiently. The project has an important training component and will educate the parties to base their further activities on the scientific approach.

**Credit organization:** an opinion was voiced that the attitude and assistance of specialist agronomists, to whom farmers turn, is also quite different with experiences and professionalism. No agronomist bears responsibility for the results of his advice and instructions. Pasture management and improvement is a strictly professional activity and educating and training farmers is very important. At the same time, it's important to have a specialized agency which will be accountable for support, advice, and instructions. The educational component of the project is most welcome.

**Representative of the Ministry of Economy:** Pasture improvement and sustainable management project is most important and welcome. Project implementation is realistic, as the project intersects a number of activities of state policy. For example, a new subsidy program in animal husbandry is being launched within which the state will compensate 40% using the AMD 2.5 billion (around 5.5 million USD) investment in agriculture. The launch of the animal husbandry development program will be an additional incentive for the implementation of the pasture improvement and sustainable management project, as these two should be implemented in parallel. Considering the fact that applications for quite large sums have been received, they think that the environment is quite beneficial for the successful launch and implementation of the Project.

The pasture improvement and sustainable management project can be combined with pedigree cattle breeding, sheep breeding, and other programs subsidized by the state. State subsidies and compensation of part of the expenses can be an additional incentive and guarantee for the financial institutions so that they loan to the beneficiaries included in the Project. State guarantees and subsidies also somewhat reduce loan risks.

**Vahagn Voskanyan, Gagik Tovmasyan:** we need to consider the fact that pasturelands are community and state property, and it's difficult to persuade people to make investments in businesses in which they don't own the property. According to the law, the lands are leased for 3 years, subject to be changed. Three years is too short to make such an investment and perform risk containing work. Therefore, the new pasture management concept and other legal initiatives propose updating not only the lease period, but also other terms of the lease.

Mr. Tovmasyan spoke more substantively about the positive results of pasture improvement for the community and the interest of the community head in the improvement of the pastures in the administrative area of his community. This is due to the simple fact that the potential lessee prefers to lease a high-quality pasture for a higher price than a degraded pasture for a lower price.

Mr. Tovmasyan mentioned that this is a completely new model and new culture in the Armenian reality, even though it's already widespread in European countries. Due to the novelty, the model is still not quite comprehensible for the parties, but after the start of application, the results and the advantages of the model will be obvious. The target communities in the RA Gegharkunik and Vayots Dzor marzes have all the prerequisites for the efficient application of the model, and the only missing link in the chain is the consent and commitment of the state/community to participate in the agri-environmental payment scheme. The scheme envisages compensation by the state and the community for part or all of the expenses, through the principle of performance-based payments. The need for agri-environmental payments is due to the reality of this model contributing to the conservation and improvement of natural pastures and thereby to the conservation and improvement of the biodiversity in these areas.

**The representative of the Ministry of Economy** mentioned that there is a successful practice of loaning to communities and individual farmers by banks, for example, when buying expensive agri-machinery. For example, ACBA Credit Agricole bank has implemented such leasing programs (they also have experience in loaning to communities).

**The representative of Fast Credit** proposed to differentiate between individual farmer and large farming business owner. It is preferable to deal with large businesses that have the necessary knowledge and skills to manage the business and have a clear idea about the profitability of the investments.

### **Question 2.**

The Moderator then presented the second question for discussion: the grant component. To what extent will it contribute to ensuring the participation of financial institutions in the Project? It was proposed to present all the conditions and prerequisites which will make this participation possible.

**Answer 1.** Availability of additional loan resources as credit organizations always have a lack of loan resources.

**“Agroleasing” Credit Company:** who is our customer? We have loaning success stories and loaning failures. Who are we to work with and who are we to give loans to? We prefer working with farm enterprises. We need to clarify whether it’s micro, medium, or large businesses. The results are usually quite diverse.

**Moderator** – the purpose of this meeting is to clarify who the financial institutions actually prefer working with.

**Mr. Tovmasyan** thinks that it is preferable to cooperate with the community, not with businesses, as the land is community property, and the community is clearly interested and committed. According to Mr. Tovmasyan, the main beneficiary is the local self-government.

The representatives of the financial institutions requested the structure and content of the expenses calculated for the pasture improvement works. Mr. Tovmasyan presented the detailed cost breakdown and the directions.

### **Question 3**

The third question was about the investment results per 1 ha, payback period and subsequent new investments.

Mr. Tovmasyan informed that the pasture is not used in the subsequent first year of improvement. The second year is considered Improvement year 1. There are no subsequent investments needed in the area as a sustainably managed pasture does not need further improvements. He brought the example of efficient management in two communities in Syunik marz where the area is in a good condition even in the seventh year after improvement and is quite efficiently used.

### **The Moderator proposed to continue presenting conditions and prerequisites**

**Answer 1.** Public participation is an important prerequisite in terms of organization. An inventory of the areas subject to improvement should be developed, a database created, access given to the population to detailed data on the areas to be leased by their status and state (needing improvement, to what extent, etc.).

The state should also participate by giving co-financing, subsidies, guarantees, insurance, etc.

The third function is education, awareness-raising, and information transfer.

**Answer 2.** Fast Credit finds the commitment of the state to insure against some of the risks important. The communities should be given oversight functions.

**Answer 3.** Is the land use format limited or is the lessee free to carry out any activity? The degree of freedom determines the framework of receiving profit from the business. If the lessee is limited, subsidies from the state, insurance or risk-sharing are needed, with clear guarantees.

**Answer 4.** Warranty refunds should be arranged only when planned results have been achieved. Clear criteria for result assessment should be in place.

Mr. Tovmasyan stressed that in discussing any business plan in this direction we shouldn't forget that we are talking about national treasure, and the issue of participation and responsibility of local self-government and the state is very important.

The representatives of the financial institutions underlined the subjective role of the head of the community which can have a huge impact on the successful implementation of the project.

Another representative mentioned that after the consolidation of communities, the role of the community head has diminished, and the Council of Aldermen has become more prominent. Therefore, under the new circumstances, the influence of the community head will diminish significantly, and the role of the Council of Aldermen will be more decisive.

**Mr. Tovmasyan** mentioned that specialized agricultural-environmental departments are to be established in the staff of the consolidated communities which will be a serious step in terms of ensuring oversight and monitoring by the community.

**Another representative** proposed starting the Project with a small pilot, in order to observe and assess the functions and roles of all the components of the new scheme. The effect of visible and actual results is much stronger than that of theoretic discussions. Alternatively, it was proposed to use the results and cost-effectiveness of pasture improvement done under other projects.

Concluding the discussion, **Mr. Tovmasyan** proposed to consider the biodiversity and economic components as a whole, giving priority to the environmental and biodiversity component.

It was proposed to discuss the economies of scale in the model and to identify a minimum area which can be economically profitable. Mr. Tovmasyan mentioned an area of 5 ha.

#### **In conclusion, the participants proposed or identified the following points:**

##### **1. Prerequisites for loaning**

- a) Provision of additional target loan resources by the state within the project
- b) Educational and awareness-raising campaigns for the beneficiaries
- c) Involvement and active participation of professional consultancy firms or specialist consultants
- d) Development of accountability mechanisms for consultancy
- e) Safeguards, co-financing, subsidies, insurance, and other guarantees by the state
- f) Introduction of risk assessment and risk insurance mechanisms
- g) Improvement of the legislative framework governing the management and leasing of natural pastures (lease period, lease fees, etc.)
- h) Development and introduction of pasture management plans
- i) Establishment of a specialized structural unit and creation of specialist positions in the communities
- j) Development and introduction of key performance indicators

##### **2. Additional supporting conditions and prerequisites: programs implemented and planned by the state which intersect this project and can ensure a favorable environment, in particular:**

- a. Projects in the sector of animal husbandry, pedigree cattle breeding, and sheep breeding implemented by the state which intersect with the new scheme and can ensure a favorable environment.
- b. Newly launched program by the RA Ministry of Economy within which the state compensates 40% of AMD 2.5 billion investment in agriculture.
- c. Leasing programs in the agriculture sector subsidized by the state which can be applicable in the new scheme as well.

##### **3. Additional actions needed from the government**

- a. Take inventory of the areas subject to improvement, assess the actual state of the land, do mapping, calculate the necessary expenses for each area, and establish a database accessible for financial



institutions. The database is needed to assess the risks in each concrete case of loans; Need for oversight powers, guarantees,

b. and accountability of the state and/or local self-government

**UNDP workshop with banks and micro-credit organizations  
on Agri-Environmental Scheme (AES) with Performance-Based-Payment (PBP) mechanism**

Date: June 22, 16:00 – 18:00 / Location: Armenia UN office

	Participant	Position	Organization	Signature
1	Gagik Israelyan	Manager of Corporate Finance Division of Agribusiness Financing Department	CONVERSE BANK CJSC	
2	Aram Mkhitaryan	Executive Director of Agroleasing LCO Company	AGROLEASING LLC	
3	Vachik Danielyan	Senior Specialist of agricultural loans	ARMECONOMBANK OJSC	
4	Hayk Bagratuni	Head of Energy and Agriculture Department financing	ARMBUSINESSBANK CJSC "AGRO-CREDIT"	
5	Marine Afyan	Head of Corporate Customer Service and Business Development Department	ARMBUSINESSBANK CJSC "AGRO-CREDIT"	
6	Karen Petrosyan	Chief Executive Officer	CREDIT CONCEPT UCO	
7	Aram Ghukasyan	Deputy Executive Director	GLOBAL CREDIT CJSC	
8	Sergey Gasparyan	Business Management Director	FAST CREDIT CAPITAL UCO	
9	Sona Suvaryan	Head of Department for Cooperation with Financial Inst.	FAST CREDIT CAPITAL UCO	
10	Mushegh Petrosyan	Deputy GGT / Operations Director	FARM CREDIT ARMENIA UCO	
11	David Shushanyan	Corporate Business Development and Sales Director	UNIBANK	
12	Vardan Sargsyan	Senior Specialist on SME and agricultural business	ACBA BANK	
13	Mkhitar Azatyan	Executive Director	AGRO-CREDIT CARD	
14	Edgar Galstyan	Executive Director	ANIV UCO LLC	
15	Lilit Garayan	Co-founder and CEO	ADWISE CONSULTING	
16	Ira Panosyan	Head of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department	Ministry of Economy	
17	Narine Hakobyan	UNCCD National Focal Point, Land and Underground Resources Policy Department	Ministry of Environment	
18	Hakob Martirosyan	Senior Specialist, Specially Protected Areas of Nature and Biodiversity Policy Department	Ministry of Environment	
19	Meri Harutyunyan	Senior Specialist, Strategic Policy Department	Ministry of Environment	
20	Yeghiazar Davtyan	Senior Specialist, Local Self-Government Dpt.	Ministry of Territorial Administration and Infrastructures	
21	Ashot Khoetsyan	Adviser to the Minister		
22	Rubik Shahazizyan	Head of Program Impl. and Monitoring Department	ENVIRONMENTAL PIU	
23	Armen Shaghbazyan	Eco-corridor project coordinator	WWF Armenia	
24	Hovhannes Ghazaryan	CER portfolio Manager	UNDP	
25	Gayane Gharagebakyan	National Team Leader / GEF Lake Sevan PPG	UNDP	
26	Vahagn Voskanyan	Impact Investment Adviser	UNDP	
27	Garik Khachikyan	Policy Advisor	UNDP	
28	Gagik Tovmasyan	Expert / GEF Lake Sevan PPG project	UNDP	
29	Georgi Fayvush	Expert / GEF Lake Sevan PPG project	UNDP	
30	Karen Jenderedjian	Expert / GEF Lake Sevan PPG project	UNDP	
31	Nune Sakanyan	Expert / GEF Lake Sevan PPG project	UNDP	

## Working discussion in the Ministry of Environment

<b>Date:</b>	July 14, 2022	
<b>Agenda:</b>	Key indicators to be used in the Agri-environmental payment scheme	
<b>Venue:</b>	Ministry of Environment	
<b>Participants:</b>	1. Tigran Gabrielyan	Deputy Minister of Environment
	2. Voskehat Grigoryan	Head of the Special Nature Protected Areas and Biodiversity Policy Department
	3. Lusine Avetisyan	Head of the Strategic Policy Department
	4. Atom Mkhitarian	Senior Specialist of the Strategic Policy Department
<b>Consultation purpose:</b>	<p>1) The PPG Nation Team Leader presented to the partners of the Ministry of Environment the list of the key indicators developed by the PPG team, which are recommended for assessment of pasture improvement actions from a degraded state, as well as for evaluating the expected results of pastures' sustainable management.</p> <p>2) The structure of the state articles of co-financing of the Ministry of Environment and the size of the funds per specific articles were discussed again, before issuance of the MoE co-financing commitment letter.</p>	
<b>Consultation outcome:</b>	The colleagues of the Ministry of Environment emphasized the importance of indicators' availability, they considered them generally acceptable. The Deputy Minister (recently appointed – moved to the MoE from the position of the Deputy Minister of Economy) highlighted the substantive role of the Agri-environmental payment scheme, and especially the great potential of eliminating/preventing land degradation through it.	

The PPG team has developed an outline structuring the Agri-Environmental Payment Scheme with key performance indicators (KPIs) – see attached below, for seven main groups, which are as follows:

1. Land degradation neutrality/LDN (3)
2. Biodiversity (4)
3. Stability (2)
4. Socio-economic (1)
5. Pastures' infrastructures (3)
6. Institutional (3)
7. Vulnerability to climate change (2)

For a total of these seven groups, 18 indicators were developed, with the analysis of which it will be possible to assess what was the existing initial status and what inclusive result/outcome can be achieved as a result of the implementation of the planned improvement works in the area of the given pasture. Partners from the Ministry of Environment were informed that these indicators are drafted as a preliminary version for the selection by the MoE, and perhaps by the MinEconomy and MTAI. UNDP will send the KPIs officially for review by the MoE, and for their further use during the project implementation.

For the official reconfirmation of the co-financing, UNDP will also send the letter to the Ministry of Environment, which will provide the co-financing funds, according to the proportions/rates of the budget allocations for 2022.



## **Agri-environmental payment scheme – brief description**

As planned, the expert team of the "Conservation and Sustainable Management of Land Resources and Valuable Ecosystems in the Lake Sevan Basin" PPG phase UNDP-GEF project developed an agro-environmental payment scheme (AEPS), which will be implemented under the Component 3.1. of the FSP, refined and tested in a number of regions of Gegharkunik and Vayots Dzor marzes. At this stage, it is planned to apply the AEPS aimed at the improvement and sustainable management of natural pastures (pastures and grasslands), within the framework of nature-positive and integrated environmental approaches. In the case of successful testing of this scheme for pasturelands, its amended model can also be applied to the improvement and sustainable management of other natural resources (forests, farmlands, water resources).

The project will closely cooperate with all the participating parties of the scheme, including the RA Ministry of Environment, Ministry of Economy, MTAI and Ministry of Finance, communities, financial and credit organizations, contributing to the synchronous operation of all important mechanisms in the scheme. The important elements of the scheme are presented below.

### **Agro-Environmental Payment Scheme - brief description.**

**INITIATION.** At the initiative of communities, and/or pasture-user cooperatives, and/or large livestock farms, the condition of the natural pastures used under their management, the condition and the level of degradation will be assessed, and based on this, pasture improvement and sustainable management plans will be drawn up. The initiators will provide calculation, assure planning and availability of necessary resources.

**ORGANIZATION AND COORDINATION OF PASTURE IMPROVEMENT WORKS.** Areas to be improved will be selected, preliminary assessment of areas, inventory and mapping, recruitment of personnel, training, improvement works, assessment of improvement results (in accordance with key performance indicators/KPIs), sustainable management, monitoring, control, reporting carried out.

The improvement works will be carried out by the initiators or a specialized structure. The Ministry of Economy and the MTAI will introduce respective subsidy and subvention programs supporting the development of agriculture. Through investments coming from these programs, community (eg. pasture use fees), private (possibly also credit) sources, the works of improving pasturelands will be carried out.

**ASSESSMENT OF THE INITIAL CONDITION AND IMPROVEMENT OF PASTURES.** It will be carried out by a specialized structure, expert(s), specialists of the municipality. The assessment of final results/outcomes will be carried out by a professional structure, collecting and analyzing data defined for the KPIs. An incentive payment will be made based on the achieved result/output.

**PERFORMANCE PAYMENT.** Payment will be based on achievement of key indicators, presenting results aimed at land degradation neutrality (LDN) and biodiversity conservation (BDC). The rest of the indicators (according to the attached list) will be used for ongoing monitoring and updating the planning of measures. The payment will have an incentive meaning, it can correspond to a certain percentage of the incurred expenses (eg. 30%). This money will be invested in the process of improving other portions of degraded areas. The Ministry of Environment will act as the payer for the results of improvement and restoration, ultimately for the LDN and BDC, (possible through the E-PIU).

## Working discussion at the Ministry of Finance

<b>Date:</b>	July 20, 2022	
<b>Agenda:</b>	✓ Agro-environmental payment scheme ✓ Payment mechanisms for achieved results	
<b>Venue:</b>	RA Ministry of Finance	
<b>Participants:</b>	Vahe Hovhannisyan	Deputy Minister of Finance
	Ruzanna Gabrielyan	Head of the budget process organization department, a.i.
	Tamara Ghalayan	Head of the department for coordination of cooperation with foreign states and international organizations
	Natia Natvlishvili	UNDP Resident representative in Armenia
	Hovhannes Ghazaryan	UNDP Climate, Environment, Resilience Team Leader
	Gayane Gharagebakyan	PPG National team Leader
	Diana Harutyunyan	Head of UNDP Climate Programs
	Tatevik Koloyan	Head of UNDP Innovation and SDG Finance Portfolio
<b>Consultation purpose:</b>	The second issue on the agenda of this meeting and discussion was related to the introduction in Armenia the Agri-environmental payment scheme aimed at boosting the works to prevent the degradation of pasture lands and improve their status, according to the identified indicators, and the view of the Ministry of Finance to the implementation of such a mechanism.	
<b>Consultation outcome:</b>	The RA Ministry of Finance welcomes the launch of a financing mechanism based on evaluating the results of works performed in any field, and is ready to assume its role in such a mechanism if it comes to the implementation of measures with state funds.	

**Presented.** The RA Deputy Minister of Finance and team members were introduced on details of the Armenian model of the Agri-environmental payment scheme designed by the PPG team, which defines the following parties according to the main roles in pasture improvement and sustainable management works:

- |           |                  |           |                                     |
|-----------|------------------|-----------|-------------------------------------|
| <b>1)</b> | <b>Initiator</b> | <b>2)</b> | <b>Evaluator</b>                    |
| <b>3)</b> | <b>Investor</b>  | <b>4)</b> | <b>Payer for the result/Outcome</b> |

UNDP suggested that the implementation of the Agri-environmental payment scheme in the current and upcoming future conditions is possible with significant state participation, both from the point of view of the provision of relevant funds and the organization and offering of services. The UNDP team also informed that they already have developed key indicators (KPIs) that will serve to evaluate the result. It was emphasized that it is possible and desirable to allocate state funds/financing both as investment capital, as well as in the form of an incentive payment for the achieved result. In terms of investment, the scheme also considers the participation of the community budget, as well as the inflow of private capital, which may be more realistic after the initial model of the scheme is launched, with participation of state institutions, and when the efficiency will be demonstrated.

**The response of the RA Ministry of Finance.** The Deputy Minister of Finance informed that in general their position is to have as much as possible financing to follow the assessed results, rather than financing planned actions, without measuring the results, including in any sector. And the programs that the sectoral ministries will present to the Ministry of Finance as a sectoral priority, will justify their importance, expected effectiveness, then they are in favor of launching such a scheme in the agricultural sector, which will also demonstrate environmental achievements.

UNDP conclusion: Continue to work with the Ministry of Environment.

## Project Validation Workshop

<b>Date:</b>	July 22, 2022
<b>Agenda:</b>	Validation of the UNDP-GEF program with the involvement of stakeholders
<b>Venue:</b>	UN House, Conference Hall

### Participants:

UNDP-GEF project  
Conservation and Sustainable Management of Land Resources and High Value Ecosystems in  
Lake Sevan Basin for Multiple Benefits

Participants of 22 July Validation Workshop

	Name	Position / Organization	Signature
1	Aram Meymaryan	Deputy Minister of Environment / CBD Focal Point	
2	Voskehat Grigoryan	Head of Specially Protected Areas of Nature and Biodiversity Policy Dpt. / MoE	
3	Lusine Avetisyan	Head of the Strategic Policy Department / MoE	
4	Narine Hakobyan	Chief specialist - Land and Underground Resources Department, CCD country focal point / MoE	
5	Ashot Giloyan	Head of Local Self-Government Dpt., / MTAI	zoom
6	Yeghiazar Davtyan	Senior Specialist of Local Self-Government Dpt., / MTAI	zoom
7	Karen Manvelyan	Director / WWF Armenia	
8	Ira Panosyan	Head of Department of Agricultural Programs Elaboration, Resource Use and Cooperative Development / Ministry of Economy	
9	Harutyun Daveyan	Head of Division of Agricultural Resource Use / Ministry of Economy	
10	Margarita Gasparyan	Head of Department of Cooperation with Donors / EPIU	
11	Meri Martirosyan	Leading specialist - Project Implementation and Monitoring Dpt. / EPIU	
12	Aram Gugaryan	Deputy Head of Cadastre Committee	
13	Karen Mnacakanyan	Director of Sevan National Park (SNP) / a.i.	
14	Arayik Hunanyan	Head of Scientific Study, Monitoring and Cadaster Processing / SNP	
15	Anna Torosyan	"Hayantar" / Assistant to Director	
16	Gayane Shahnazaryan	Deputy Director HMC SNCO / MoE	
17	Vardan Karyan	Head of Soil, Bottom Sediment, Hydro-Biological Monitoring Service / HMC	zoom
18	Rima Avetisyan	Senior Specialist, Bottom Sediment, Hydro-Biological Monitoring Service / HMC	
19	Anna Zatikyan	Head of Information Analysis Service / HMC	
20	Marine Danielyan	Senior Specialist, Information Analysis Service / HMC	
21	Armine Arsenyan	Mapping Analyst, Information Analysis Service / HMC	
22	Martin Petrosyan	Head of Agriculture and Nature Protection Dpt. / Gegharkunik	
23	Tatevik Boyakhchyan	Senior Specialist – Irrigation/Collector Drainage System Dpt. - Water Committee	zoom
24	Garnik Gevorgyan	Head of Agriculture and Nature Protection Division / Vayk Municipality	zoom
25	Vahan Amirkhanyan	FAO	
26	Antonin Kusbach	FAO	
27	Inga Zarafyan	President / Ecolur NGO	
28	Levon Movsisyan	GIZ (ECOServe)	
29	Hovik Sayadyan	GIZ (EU4Sevan)	zoom
25	Aram Mkhitarayan	Executive Director of Agroleasing Leasing Credit Company	
26	Hovhannes Ghazaryan	CER Portfolio Manager / UNDP	
27	Gayane Gharagebakyan	National Team Leader / UNDP	
28	Tatevik Koloyan	Innovation and SDG Finance Portfolio Lead / UNDP	zoom
29	Svetlana Harutyunyan	SGP National Coordinator / UNDP	
30	Astghik Danielyan	EU4Sevan Project Coordinator / UNDP	
31	Vahagn Voskanyan	Impact Investment Advisor / UNDP	
	47. Anna Torosyan	City Planning Committee of Republic of Armenia	

**Date:** 22 July 2022

**Starting Time:** 15:00

**Moderator:** UNDP CO

**Place/hybrid format:** UN House / 14 Petros Adamyan, Yerevan

**Zoom link:** <https://undp.zoom.us/j/85391406012?pwd=b2RhVzNveWVTUERVTUkvTOROVUIkUT09>

## VALIDATION WORKSHOP OBJECTIVE

The Validation Workshop was conducted to conclude wide consultations with stakeholders directed to validate if the project design reflects the national priorities, the views of stakeholders and receive final feedback on key elements of the project design and secure consent and support for GEF Full Size Project called “**Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits**” to promote an integrated landscape approach and Land Degradation Neutrality (LDN) in Lake Sevan Basin in the proximity of Protected Areas (PAs) and other Key Biodiversity Areas (KBAs), through integrated and spatial land use planning including the wise use of pastures and forests and efficient use of water on arable lands, as well as protection of biodiversity inside and outside of Sevan National Park.

The meeting was opened by **Mr. Hovhannes Ghazaryan**, UNDP CER Portfolio Manager, who welcomed and thanked all partners present at the meeting and who joined remotely via zoom from different national, regional/community, and international organizations. He informed about the purpose of the workshop, introduced the format and the agenda of the workshop, and its importance in providing stakeholder feedback on project design.

Then the floor for a welcoming and for the workshop opening was passed to the Deputy Minister of Environment **Mr. Aram Maymaryan**, who greeted everyone on behalf of the Ministry of Environment of Armenia. He mentioned that he can confidently inform that the Ministry of Environment of the Republic of Armenia pays high importance to the issues of Lake Sevan, which are very complex. Despite the fact that the problems of Sevan have a multi-sectoral nature, the Ministry of Environment (MoE) actually acts as a leading governing body, which is honorable on the one hand, and very binding on the other. The following important aspects were highlighted in his speech.

- a) As a result of the intensive and imprudent use of Lake Sevan water, the balance of the lake has been disturbed, leading to the disruption of a number of important processes and the integrity of ecosystems. Therefore, taking into account the urgency of improving the ecological condition of Lake Sevan, such projects are very important and this project will be another one that will address the existing problems of Lake Sevan with its specific approaches.
- b) It is an important feature that this project will address the issues of combating land degradation/desertification and preserving biodiversity in the Sevan basin, including in project target 6 communities of Gegharkunik and Vayots Dzor. The MoE is responsible for leading policies and measures aimed at combating desertification and preserving biodiversity in Armenia. The approaches adopted in this project comply to the mandate of the GEF to support countries in fulfilling their obligations under the conventions, and the Government of Armenia has a lot to do in this field.
- c) If other projects related to Sevan mainly address the problems of the aquatic environment of the lake, the main target of these projects is the sustainable management and use of natural resources surrounding the lake: forests, pastures, croplands, terrestrial water resources (irrigation systems), specifically addressing and potentially mitigating the harmful effects of ongoing human activities in households' and agricultural practices, as well as considering the consequences of increasing climate impacts on the sustainability of natural resources.
- d) The project specifically will address both the protected areas in the Sevan basin (Sevan National Park, Juniper Woodland Sanctuary, Jermuk forest reserve, South-East Lesser Caucasus eco-corridor), as well as the protection of the natural resources of the country's biodiversity outside these areas. It is expected that both in this preparatory phase and during the implementation of the project, a broad participatory cooperation and support with the involvement of both governance and civil society, scientific, educational, service providers (e.g. water user associations, pasture users' cooperatives), private-business, financial, tourism supporting, and other structures operating in the communities will be in place.
- e) And every project with expected results of their implementation complementing with efforts of the Armenia Government and is implemented within the framework of the logic of reforms, definitely receives the support of the MoE.

### Minutes of the Validation Workshop

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
<p><b>Levon Movsisyan –</b> <i>GIZ Ecoserve Project Consultant</i></p>	<p>Highly welcomed this wonderful project outlined with ambitious indicators. GIZ has established and is the co-founder of the Platform for Sustainable Pasture Management, and it's necessary to join and effectively coordinate efforts of both projects in this direction. The imperfection of legislative regulations on pastures management as a risk factor was emphasized. Under the GIZ support a concept document on pasturelands management has been developed and submitted to the Ministry of Economy. In addition, certain legal amendments to the Law on Local Self Government and other laws, were drafted and shared with the Ministry of Territorial Administration and Infrastructure.</p>	<p><b>Hovhannes Ghazaryan:</b> The need of improvements and amendments in the pasture management legislative regulations is acceptable, and that was considered as a key direction in the project, which will continue its close collaboration with the GIZ initiatives.</p> <p><b>Gagik Tovmasyan:</b> Confirmed that the activities related to pastures management envisaged and performed within the framework of platform's logic were considered and are reflected in the Project Document. Informed that the Pasture management Concept paper is being circulated within the Ministry of Economy and expected soon to be presented to Government's approval. It will be presented for Government's review soon. Indeed, close coordination among different partners is welcome under the platform's logic to achieve specific solutions.</p>	<p>Not required.</p>
<p><b>Aram Gugarats –</b> <i>Deputy Head of Cadastree Committee</i></p>	<p>a) Is it envisaged to integrate this platform with national geoportal and how the baseline data collection will be arranged, through which means are the data going to be collected?</p> <p>b) Noted the importance of coordination when developing electronic mapping or datasets for their compatibility to the linked nationally supported larger datasets to be able to exchange data.</p> <p>Emphasized the importance of GIS specialists' preparation as system user cadre in Local Self Governance/LSG structures in communities. Given projects' main activities will take place in communities, it is important that the LSGs have their own specialists to be part in the data collection,</p>	<p><b>Gagik Tovmasyan:</b> Thanked for the important question. Closely linked and very relevant activities were conducted under GIZ-ICARE joint "Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus" (ECOserve) project and they have developed the mapping layers for data collection, monitoring, sustainable use, and decision making for pastures and hay meadows. This is a very good instrument that definitely will be used for the project purposes in collecting, processing and maintaining pastures and grassland related data for effective planning of measures and management of a very large areas to be targeted by the project capturing 150,000 hectares.</p> <p>In addition, the project will establish collaboration with State Cadaster Committee since there is a need to use standardized remote zoning screening with regard to primary data collection. Data collection needs to comply to the existing standards of the data types as well as to data collection processes. It's important to have also in mind, that Armenia has launched a new satellite, which may provide capacities to State Cadaster Committee and other users of data obtained by remote sensing technology along with some field monitoring data collection for the development of management norms, plans, assessment tools.</p> <p><b>Gagik Tovmasyan:</b> Under the GIZ project a team of specialists at National Agrarian University and Ministry of Economy were trained in using this data accumulation, analysis engine.</p>	<p>Not required.</p>

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
	<p>analyzing process, not the ones sent from the ministries to develop and execute plans and so forth.</p> <p>c) Informed that standards for different layers of GIS systems currently are under development to make them aligned with national geoportal concept and that mandates cooperation between linked dataset users. The geoportal is operating currently and soon it will be available to the public. My request is to make it practical so those are not something to keep in our drawers but make them</p>	<p>This project has a substantive capacity building component, and local specialists will have a good opportunity to be trained in the technical aspects of pastures/grasslands management, as well as in using, analysis, interpretation of GIS systems and produced data received by remote sensing technology, and using other databases generated by respective state entities, such as the State Cadaster Committee.</p> <p>The State Cadaster Committee is one of project's key stakeholders, and close coordination for different purposes is envisaged.</p>	
<p><b>Gayane Shahnazaryan - Deputy Director of Hydrometeorology and Monitoring Center SNCO of the MoE</b></p>	<p>Under the effective pastures and grasslands management did the project take into consideration the necessity of infrastructures / stations for cattle watering, because when the upper flows of small ditches and streams are being used for that purpose, it creates very bad conditions and hampers/disturbs both the monitoring activities, as well as conservation of water ecosystem biodiversity?</p>	<p><b>Gagik Tovmasyan:</b> This is a very important subject. Prior to this project a due consideration has been paid to this raised issue in Armenia still since 2010 within the framework of CARMAC project financed by the World Bank, in initiatives for improvement of pastures/grasslands primary infrastructure, a predominance was given to cattle watering systems. In the last 50-years period many natural water sources (wells, streams) over the time lost water volume or even dried out, meaning that the climate change impact is already apparent which is a pressing factor to improve the surface runoff management under the pastures management system. In the framework of this project, in the context of pasture management, the improvement of the infrastructure network is an important and mandatory element.</p>	<p>Not required.</p>
<p><b>Aram Mkhitarian - Director of Agroleasing Credit Company</b></p>	<p>a) One important outcome of this project will be that the villagers can improve degraded pastures to normal conditions. During last 20 years, the company was taking part in many such projects were implemented under USDA, IFAD, Kingdom of Denmark and other donors' support. Based on our previous experiences, it is very important to correctly target who will be the beneficiaries of the project and how to encourage/motivate them so that they will properly participate in, take advantage of and use/benefit the project support, i.e. from technical assistance, provision of incentives, maybe grants, or concessional loans (with low interest rates), subsidies for demonstration of good results.</p>	<p><b>Gayane Gharagebakyan:</b> The question is directly linked to the designed and proposed Agri-Environmental Payment Scheme aimed at pastures and grasslands improvement. As far as it was possible within this short period of time, the PPG team have conducted multiple discussions on agri-environmental payment with all relevant stakeholders (including the Ministries of Economy, Finance and Environment, Ministry of territorial Administration and Infrastructure as well as with the communities, Pasture User Cooperatives) in accordance with their functional powers, and received preliminary consent. All of them have expressed good understanding of the importance of the scheme and willingness to be involved. In particular, the Ministry of Economy is interested to expand the agriculture development subsidy programmes in support of pastures' improvement. The Ministry of Territorial Administration and Infrastructure has already introduced few new articles in subvention programmes in support of remote pastures use. In addition, the Ministry of Finance is willing to support the result-based payment systems in Armenia. During the PPG phase it was not realistic to have all elements and</p>	<p>Not required.</p>

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
	<p>b) Besides correct identification of beneficiaries' groups to be involved in a given initiative, it is important that the targeted beneficiaries are informed on advantages of proposed project, on success factors, also on potential risks. This means that the project will need to increase beneficiaries' awareness, acquaint them with good practices, favorable business models, etc.</p>	<p>mechanisms already in place, given the scheme envisages operation of supporting state budget programs (passing through development and approval cycle) to be developed and reflected in the next year's state budget. All necessary elements of agri-environmental payment scheme directed to pastures improvement are described and the functional linkages identified with potential responsible players. The list of key performance indicators to assess the status of pastures, is also drafted, discussed with the Ministry of Environment. Currently the proposed scheme refers to pastures, similar approach can be applicable also for farmlands, arable. The results of conducted improvement works will be assessed based on specific and measurable indicators. The payments based on such evaluations are still matter of discussions.</p> <p><b>Hovhannes Ghazaryan:</b> Capacity building measures are quite substantive, comprehensive, and are reflected in the Project Document. The project will focus on provision and development of expertise in different technical areas.</p> <p>Touching the risk factors – either linked to the involvement of beneficiaries and building their capacity to maximize their gains, or provision of relevant expertise/advisory support is very important, and both will be under the project's focus.</p>	
<p><b>Vardan Mamikonyan</b> - Executive Director of Foundation for Restoration of Sevan Trout Stocks and Development for Aquaculture</p>	<p>a) The objectives of the Foundation to some extent are linked to the project purposes. The question was raised, if there is a possibility for the project to support the fish farming performed by the Foundation. There is a casual fish farming in the rivers flowing into lake Sevan which sometimes contains risks and can result in ecological problems, particularly linked to alien fish species for these ecosystems, as well as exposure of fish diseases. If it would be possible to create smart fish farms as a result of cooperation with the foundation in the proximity of such rivers and managed by relevant specialists, then such risk could be minimized.</p>	<p><b>Hovhannes Ghazaryan:</b> Quite an important issue existing in the country is raised. GEF is funding mechanism geared towards the implementation of measures in support of specific conventions commitments. Funds to be available for this project will support the prevention/reduction of land degradation and biodiversity conservation. The project's activities are not immediately related to aquatic ecosystems, instead will focus on mitigating measures through landscape activities which also impacts water environment.</p> <p><b>Monica Moldovan:</b> This is a very valuable remark, and the concern relates to alien species. Indeed, the project will not be able to support direct measures that will address alien or invasive species; however, the project is aiming at supporting the Ministry of Environment with and assessment of the ecological status of Sevan Lake, including climate change vulnerability assessment and it may include an assessment that will respond to the raised concern regarding alien invasive species. The project can conduct assessment and provide informed recommendations addressing aggressive invasive alien species in the ecological status of basin rivers which represent a spawning ground for key fish species in Lake Sevan.</p>	<p>The project will assess the risk of invasive alien species coming from aquaculture and will design recommendations and risk management measures (para 89 Project Document).</p>

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
	<p>b) A clarification was made to the raised question, mentioning that the Foundation seeks support to the conservation of endangered fish species in threatened fish ecosystems. The second part of the question was related to the risks associated with invasion of alien fish species and how to prevent the disturbance of ecosystems.</p> <p>c) The Foundation has some cadre capacities and physical conditions, as well as a small quantity of Capoeta fish parental species making possible to improve and increase numbers of parental species, particularly by hunting from Sevan. So, it will be possible to collect, grow them in the artificial basin conditions, if the conditions of the latter could be improved.</p>	<p>Under two components the project will be able to support an assessment of ecological status of Sevan basin rivers, which are the fish spawning ground for key fish species and secondly, it will support together with the Ministry of Environment and Foundation the restoration of one or two (depending on the budget availability) of some prioritised freshwater habitats based on the above-mentioned assessment. Perhaps, some of priority conservation and restoration measures could be assessing the raised specific concern, but this needs to be clarified and then agreed with the Ministry of Environment as well.</p> <p><b>Aram Meymaryan:</b> Further clarified, if Mr. Mamikonyan's raised issues was expectation from the project to support the restoration of Capoeta sevangi fish stocks in an artificial condition? Are there enough maternal species available for that purpose?</p>	
<p><b>Antonin Kusbach,</b> <i>International Forestry Consultant under FAO-GCF projects</i></p>	<p>a) Speaking about Lake Sevan Basin, it's not very logical why the southern region is included in the project, considering the water is going out.</p> <p>b) The next question, related to the degraded forests, targeting those open juniper woodlands. If the project will address other portion of massively degraded forest, meaning the Pinus monoculture from Soviet time, that is a huge issue everywhere in Armenia, and no one actually dealt with that monoculture issue so far.</p> <p>c) On the map of project sites there are green marked areas called key biodiversity areas, what is the status of that land. Is it a grassland, is it a woodland, what is that?</p>	<p><b>Monica Moldovan:</b> The project experts recommended that the project would focus on both Gegharkunik and Vayots Dzor because the basins of the two rivers Vorotan and Arpa are considered under the Law on Lake Sevan belonging to the Sevan River Basin.</p> <p><b>Monica Moldovan:</b> The project will focus mainly on natural ecosystems that are valuable from the biodiversity point of view, native species, hosting rich globally important species. The project is not only concentrating on juniper ecosystems some preferred by mountain ungulates, but other native forest ecosystems as well, however less on monoculture.</p> <p><b>Karen Manvelyan:</b> The WWF Armenia with the Ministry of Environment implemented such projects several years ago on monocultural transformation, which is more resilient to climate change and better prepared for biodiversity, but this project is focused more on local broad forests as well as some juniper open woodlands which are located in both regions and are a habitat for threatened animal species.</p> <p><b>Monica Moldovan:</b> Thank you. This is a very good question. Key biodiversity areas are globally recognized important biodiversity areas, that are contributing to the persistent of globally important species. The GEF mandate is focused on these global key biodiversity areas considered important and prioritised in the GEF project. So key biodiversity areas are those areas that are considered by the respective country as</p>	<p>Not required.</p>



Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
	<p>The explanation is taken, it is considered a mosaic landscape.</p>	<p>being reservoirs of important local biodiversity and contributing to the preservation of important population of species at global level.</p> <p><b>Karen Manvelyan:</b> I will add, these KBAs also include all kind of landscapes and habitats, not necessary to be forest or other landscape type.</p> <p>Yes, absolutely, it depends on availability of nationally and globally threatened species. How dense of these species are in the area, then it's delineating as a KBA high value.</p> <p><b>Monica Moldovan:</b> In fact, these KBAs are proxies of national biodiversity, in many countries the data is lacking, so at least this global KBAs database is giving an idea of the biodiversity of each country, and they are used as proxies also in UNDP/GEF projects.</p>	
<p><b>Narine Hakobyan</b> – National Focal Point on CCD Convention to Combatting Desertification / MoE</p>	<p>a) Reading the Project Document draft, the portion of the project budget is directed to restoration of lands, however the document also suggest that the integrated land planning is proposed through multisectoral landscape approaches aimed at land restoration and for land use. I would like to know whether these will be merely mechanisms or there are some specific improvement activities, meaning field practical works.</p> <p>Are there any specific activities on ground geared towards land improvement or the funds are directed towards designing improvement mechanisms and plans only?</p>	<p><b>Gagik Tovmasyan:</b> Based on preliminary assessment of available data and crosschecking those data from different sources, the areas where land degradation trends and the level of degradation are observed were estimated, per the PPG assessment from out of 150,000 hectares of pastures and grasslands around 15,000-16,000 ha has specifically degraded pastures and grasslands, certain areas need to receive improvement measures depending on the actual status. Particularly it can be related to land aeration regulation, water regime regulation, food nutrition regime related, as well as in terms of overall improvement of biodiversity species growth conditions and enrichment of species, particularly additional sow, grass sow by considering types and availability of landscape units. In other words, we are not going to do innovations regarding the landscapes, basically we are going to enrich all those species which already exist. In defined areas restoration measures will be performed.</p> <p>Also, in parallel, capacity building training activities for LSG staff, for farmers, etc. are envisaged to ensure sustainability of the project.</p> <p><b>Monica Moldovan:</b> The GEF funds as rightly noted are very limited and will support or will pay technical consultants that will support land degradation assessments and the development of these land use plans. The LDN targets will be identified and approved, then technical consultants will support the local authorities to develop the sustainable land use management plans around the LDN targets, will be identifying what kind of sustainable land use management measures will be needed to implement those plans to achieve the LDN targets, then apart of this will support the local authorities and farmers to mobilize funds and access funds under different state programs in order to implement the field works that are included in the sustainable land management plans.</p>	<p>Not required.</p>

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
	<p>b) The answer to the first question is very comprehensive and it covered also the second question was referring to sustainable water management plans across mentioned 10,000 hectares, namely what kind of measures are envisaged in that component, and the answer is already sounded.</p>	<p>The field works will be implemented with funds from the state government programs and with funds from different concessional loans from banks and microfinance institutions. However, the project will have approximately 300-400,000 dollars in grants to the local communities supporting them to implement some demonstrative measures, like pasture improvement, rotational grazing or agroforestry measures or intercropping. The project will also support the local communities with seeds and seedlings for planting. Apart from the grant mechanism, the project will use GEF investment to co-finance the necessary repairs to the irrigation, up to 350,000 dollars from the project, to support WUAs and several villages to repair the hydrotechnical irrigation infrastructure and promote drip irrigation in Gegharkunik and Vayots Dzor selected villages. However, this support to field infrastructure will mainly come in combination with the mobilization of funds from the subvention or subsidy state programs. In addition, the training component is also important as it will be providing training to the farmers and water user associations, governors not only on practical water management technical aspects, but also the project will assist and coach them for the project proposal writing, helping them to mobilize funds. So, the project's field works are limited indeed but are instrumental and strategically positioned, to trigger larger investments, and support farmers and local authorities to mobilize more funds necessary for the implementation of all these water/land use plans.</p>	
<p><b>Martin Petrosyan -</b> <i>Head of Agriculture and Nature Protection Department, Gegharkunik marzpetaran</i></p>	<p>The question is express as a comment/opinion</p> <p>In terms of food security, the sustainable management of pastures and grasslands is tremendously important. There are biodiversity hotspots in the Gegharkunik marz, if such a project would have been kicked off 10-15 years earlier, there would not be degradation of land to this extent, especially in those pastures of very correctly selected Shogakat, Vardenis and Martuni which are turned to the South and have substantive water scarcity.</p> <p>The project will encounter more challenges to convince people from using endangered biodiversity spots so as to have high income yields in the future or at least to have farming attractive sector with an average profitability. This will be the biggest success of the project, and its presence in selected areas of Gegharkunik marz is very welcomed.</p>	<p><b>Hovhannes Ghazaryan:</b> Thanked Mr. Petrosyan and appreciated for his support during the PPG visits and consultations in the marzpetaran and communities. The project cannot achieve its purpose without strong local assistance.</p>	<p>Not required.</p>

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
<p><b>Gegham Margaryan –</b>  <i>Head of Agriculture and Nature Protection Department, Vayots Dzor marzpetaran</i></p>	<p>He very much welcomed the project capturing two marzes. Vayots Dzor is considered to be a significant resource of Sevan basin which definitely needs to be protected. Regarding the pastures, during the last 30 years nothing has been done for pastures, with some in the proximity of residential areas became degraded, as well as the remote pastures were not effectively used and degraded to different degree. The project is very welcomed, important and timely. Its importance is that we collect huge amount of data to have some basic idea on our further actions. We had several meeting and discussions with the PPG team representatives, are committed to support the realization of this project.</p> <p>During the last 4 years eight settlement areas in the marz were selected within the framework of CARMAC project and shepherd house with stabling in remote pastures were built. However, this is not enough, and large work still is necessary to perform.</p> <p>In the marz husbandry is incrementally declining, and we have witnessed serious problems in the field of cattle-breeding for the last 15 years, particularly observing a pasture grazing during the whole year even in the areas that cannot serve for pastures. Former communities Yeghegnadzor and Vayk of Vayots Dzor have bred over 120,000 state and 20,000-25,000 own small horned cattle. Currently, we have 14,000 small horned cattle. I would like to add that we have temporarily located 18,000-20,000 small horned cattle brought from Ararat and Armavir Regions. This means that we are employing 22-23% of the pastures in the case when Vayots Dzor region’s pastures comprise 92,000 hectares of agricultural lands, which is &gt;50% of the pastures to illustrate our low effectiveness. It is our request to have information on sustainable pasture management plans, so we can use the pastures effectively and purposefully.</p> <p>Regarding the biodiversity, it was informed that out of 465 animal species existing in the Republic of Armenia, 224 are habitants in Vayots Dzor marz.</p> <p>During the last 6-7 years the invasion of grey bears to human settlement has harmed the people. He questioned what steps can be take in order to prevent the damage of biodiversity to the village</p>	<p><b>Hovhannes:</b> Thanked for hearing and receiving support to the project also from Vayots Dzor marzpetaran.</p> <p><b>Monica:</b> The PPG project colleagues, experts that have been engaging with local authorities, and also farmers, provided information on the human-wildlife conflict. The bears are attacking or encroaching with the local livelihoods. Based on this reported information a provision in the project document is included, suggesting that the human-wildlife conflict will be among the measures that the project will address by the project supported grants. For example, the project grants can pay for some fencing where needed, especially for families keeping bees, because there were reports on bears attacking local apiaries.</p>	<p>Not required.</p>

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
	households where we have 10-12 mln Armenian drams (up to 25,000 usd) losses annually.		
<b>Aram Meymaryan –</b> <i>Deputy Minister of Environment</i>	I again want to turn to the component of biodiversity, especially the endangered water species. Probably, this may sound as an insisting reiteration, but I want to have a clarity if any cooperate for restoration of Capoeta fish which is endemic to Lake Sevan and is endangered, will be possible.	<b>Monica Moldovan:</b> The project may allocate some funds for a study, an assessment which is quite important and is very needed for the ecological status of the main rivers that are forming the Sevan basin and the study will focus on assessing the ecological integrity of the spawning grounds for key fishes. Such study may include recommendations for further actions, and the required funds for restoration can be estimated and justified to come probably from the Ministry of Environment’s budget.	Project document Output 2.1.1.
<b>Hovik Sayadyan –</b> <i>Expert in GIZ/EU4Sevan project</i>	<p>What is the connection between agri-environmental payments and ecosystem services payments? Is it regulated by the law?</p> <p>More clarity on raised question was provided, stating that just needed to understand the difference between the payment/fees for ecosystem services and agri-environmental payment, is it only voluntary aspect that distinguishes them, or there is any other essential differences?</p>	<p><b>Voskehat:</b> With regard to payments for ecosystem services the Ministry has embarked on several activities in order to get a sense as to what extent those payments are understandable by our society and whether people are willing to pay for such ecosystem services. For that purpose, a small project with voluntary involvement in the discussion was piloted in Tsaghkadzor among the business entities. According to the results of the preliminary analysis, people are ready to some extent to respond to the protection of ecosystems in the places where they carry out economic activities, but it is based on voluntarism, not the principle of mandatory payment. In the legal regulations we have summarised them in environmental payments, land tax and other state fees charged from the citizens. On the other hand, we are facing another issue of our legal regulations when considering it to be mandatory, therefore we thought it to be on voluntary basis. In terms of voluntary aspect, we have witnessed a result that there are people willing to contribute to ecosystem conservation in areas where they are doing business.</p> <p><b>Monica Moldovan:</b> In Armenia there is no functioning example of payment for ecosystem services. However, the project will support the National Park to develop a business plan and identify business opportunities, possibly facilitating maybe 1 or 2 payments for ecosystem services, considering, that there are representatives of private sector that are open to pay for ecosystem services. Probably through more and more such examples, there will be a space open for the discussion about how to approach payment for ecosystem services at the systemic level, because 1 or 2 desperate examples will not change much. A legal enabling framework and a systemic approach would be needed to regulate the payment for ecosystem services in future.</p>	Not required.

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
		<p><b>Monica Moldovan:</b> The fundamental difference is that the agri-environmental payment scheme is based on key performance indicator-based payment, so the payment is conditional to the achievement of KPIs. The farmers will also get into this scheme on a voluntary basis; however, it will employ a payment mechanism based on some indicators that are agreed with the Ministry of Environment and other ministries that are contributing to funding of the scheme. In the draft project document, a recommendable agri-environmental payment scheme is designed and proposed, so when it will be implemented, it will demonstrate having multiple structures, such as initiators, which is the community or pasture user cooperatives. It has investors like for example the community self-government is also an investor because it can and will allocate funds coming from leasing of pastures, will direct funds to support sustainable pasture management and another investor can be the Ministry of Territorial Administration and Infrastructure, which is having state subvention programs that are allocating funds for infrastructure. The Ministry of Economy will be involved, banks and micro finance institutions, Ministry of Environment is also an investor. Then the assessor of pastures, which will act as an independent entity that will probably be eventually integrated within the Ministry of Environment or within this agri-environmental payment scheme, the assessor will come and assess if the performance indicators have been achieved and only after the assessor gives the positive feedback, then the payment will take place. And then we have the outcome, the entity which will pay for certain indicators that are achieved, for example the Ministry of Environment can offer incentive payments for indicators related to biodiversity of pasture. So, it is a complex mechanism, the complexity and the fact that it represents a blended financial mechanism, is another difference between this and the voluntary payment for ecosystem services, which can be very simple voluntary scheme.</p> <p><b>Anastas Aghazaryan:</b> Added some more clarification. The common ground for both is the term “payment”, but the content is principally different. The payment for ecosystem services is paid by business entity taking the advantage of ecosystems. In the project designed scheme, the husbandry farmer using the pasture will pay for using it, and that will become ecosystem services fee. On the other hand, agri-environmental payment is paid by the state as a compensation for the expenses incurred towards ecosystem restoration. A genuinely nice link between the two is possible, if according to the concept of ecosystem services the pasture</p>	

Stakeholder	Comment	PPG Team Response	Adjustments to the Project Document
		<p>use fee or leasing fee will be defined to go to the community or state budget becoming a targeted expenditure, and the funds will be allocated to agri-environmental payments out of this mobilized source.</p> <p><b>Gayane Gharagebakyan:</b> Actually, fees for pastures use exist currently, and the new draft concept of pastures management in fact reflects on it. If these fees will be calculated based on the proposed formulae with certain logic, and the fee will be calculated using a systematic approach, rather than 1000 AMD being charged annually, unclearly or without justification. That is to say, that the ecoservice payment is already included under agri-environmental payment model, however it is not called as ecosystem services payment, but “pasture use fee”, here there is a need to introduce clarity in terminology. Ultimately, if this agri-environmental payment system for pastures improvement will be operated/introduced successfully, it can be replicated and serve as a prototype in the use of other natural resources.</p>	
<p><b>Svetlana Hovhannesyan</b> - <i>Gegharkunik Region, Martuni Municipality</i></p>	<p>Speaking on degraded lands this project beneficiaries will be economical active entities, mainly big farmers. However, are layperson villagers considered? Does this project also consider participation of villagers since it is aimed at solving quite a serious social issue? I understand that this will require tremendous efforts and energy ranging from awareness, choosing the right beneficiaries, but I would like to know whether the project will involve peasants who are not registered as a legal entity?</p>	<p><b>Gayane Gharagebakyan:</b> The main instrument collectively representing the villagers are the pasture user cooperatives. Unfortunately, not in all areas there are cooperatives or those that exist are not always active as supposed. Considering that the project cannot manage thousands of hectares with the help of a single villager, the project will encourage them establishing cooperatives or activating the existing ones.</p> <p><b>Monica Moldovan:</b> UNDP core mission is supporting and implementing human rights centred projects and programmes. So, all the UNDP projects are human rights based and this means that the activities will ensure the inclusiveness and participatory approach, and the local community will participate, not only farmers, of course, but simple villagers, everybody will have the benefit to participating in the project activities under different forms, depending on their interest and scopes.</p>	<p>Not required.</p>

## Discussion with community administration and Pastures Users Cooperatives

<b>Date:</b>	August 05, 2022		
<b>Agenda:</b>	Agro-environmental payment scheme / Payment mechanisms for achieved results		
<b>Venue:</b>	Yeghegnadzor CARMAC II office and Vardenik settlement administration office of Martuni community in Gegharkunik		
<b>Participants:</b>	Vatots Dzor marz		
	1. Aharon Gabrielyan	Head of Aghnjadzor/Yeghegis Pasture user cooperative	
	2. Samvel Harutyunyan	Head of Zarithap /Vayk Pasture user cooperative	
	3. Mamikon Smbatyan	Head of Shatin/Yeghegis Pasture user cooperative	
	4. Roman Arakelyan	Head of Karnrashen/Vayk Pasture user cooperative	
	5. Armen Hakobyan	CARMAC II coordinator in Vayots Dzor marz	
	Gegharkunik marz		
	1. Abgar Harutyunyan	Head of Akhpradzor/Vardenis Pasture user cooperative	
	2. Kamo Ghazaryan	Head of Ayrk/Vardenis Pasture user cooperative	
	3. Armen Avetisyan	Head of Verdenik/Martuni Administration	
	4. Manvel Melkonyan	Member of Vardenik Parsture User Cooperative, Leading specialist in Vardenik Administration	
	5. Manvel Badalyan	Member of Vardenik Parsture User Cooperative, Specialist in communal department of Vardenik Administration	
	6. Armen Shahinyan	Head of Vaghashen/Martuni Administration	
	7. Haykaram Topchyan	Head of Tsovinar/Martuni Administration	
	8. Arman Avalyan	Assistant to the Head of Shoghakat Administration	
	9. Albert Khachatryan	Martuni Administration	
	10. Khoren Badalyan	CARMAC II coordinator in Gegharkunik marz	
		Gayane Gharagebakyan	PPG National team Leader
		Gagik Tovmasyan	PPG Expert
	Anastas Aghazaryan	PPG Expert	
	Meri Martirosyan	Leading Specialist at the EPIU	
	Yeghiazar Davtyan	Senior Specialist of the Department of the Local Self-Government, MTAI	
<b>Consultation purpose:</b>	Meetings with Administrators/Heads of settlements and Pasture Users Cooperatives/PUCs in Vayots Dzor and Gegharkuni marzes was dedicated to explaining them on the agri-environmental payment scheme, on financial mechanisms, pre- and after-improvement assessments of pastures, and on KPIs to be measured and to get feedback from these potential implementors of the scheme.		
<b>Consultation outcome:</b>	10 commitment letters were signed by the Pasture Users Cooperatives and heads of settlements – see attached below.		

Questions were raised about the legal status of communal and state pastures (the latter drlagated to the management of the community) and what will be the arrangements/contracting of these two types of properties; which pasture areas will be subject for improvement; who will decide; what will be the imprvment measures; how that will be fixed and then monitored; who will estimate/plan improvement costs, etc.? All these questions are legitimate, need to be answered during the implementation. Differentiated models can be applied depending on the combination of local situations.

Community Vayk

**Subject:** Participation in initiatives of the UNDP-GEF project "Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits"

**Commitment letter**

**Dear Ms. Natia Natsvlshvili,**

On behalf of the Pasture Users Consumer Cooperative of Karmrashen settlement, I would like to express our full support for the implementation of the new agri-environmental payment scheme designed by the UNDP-GEF project. We discussed with the project experts the approaches of the scheme, the mechanisms planned within its framework, in particular, the necessary actions aimed at the sustainable management of pastures and the improvement of degraded areas, as well as the KPIs to assess the achieved results/outcomes.

We are interested in supporting the establishment and expansion of this scheme by our available possible means for the benefit of improving and preserving the ecosystems and biodiversity surrounding our settlements, also for increase of economic advantages. We expect the participation and support of the relevant authorized bodies in solving this rather bulky initiative requiring appropriate skills. We are ready to actively cooperate with all participating parties.

We hope that the project will be approved by the GEF, and we look forward to continued cooperation.

Ստորագրություն / Signature:



Ամսաթիվ / Date:

05/08/2022

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Community Vayk

**Subject:** Participation in initiatives of the UNDP-GEF project "Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits"

**Commitment letter**

**Dear Ms. Natia Natsvlshvili,**

On behalf of the Pasture Users Consumer Cooperative of Zaritap settlement, I would like to express our full support for the implementation of the new agri-environmental payment scheme designed by the UNDP-GEF project. We discussed with the project experts the approaches of the scheme, the mechanisms planned within its framework, in particular, the necessary actions aimed at the sustainable management of pastures and the improvement of degraded areas, as well as the KPIs to assess the achieved results/outcomes.

We are interested in supporting the establishment and expansion of this scheme by our available possible means for the benefit of improving and preserving the ecosystems and biodiversity surrounding our settlements, also for increase of economic advantages. We expect the participation and support of the relevant authorized bodies in solving this rather bulky initiative requiring appropriate skills. We are ready to actively cooperate with all participating parties.

We hope that the project will be approved by the GEF, and we look forward to continued cooperation.

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Ամսաթիվ / Date:

05/08/2022





## LIST OF STAKEHOLDERS CONSULTED DURING THE PPG PHASE PROJECT

### Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits

Date in 2022	Stakeholder name / Position	Purpose of meeting / Comment
25 January	<b>Karen Manvelyan</b> - Director of WWF Armenia <b>Arman Kandaryan</b> - GIS specialist in WWF Armenia	Meeting with the Project RP to agree on the format of consultations with stakeholders
28 January	<b>Anna Mazmanyanyan</b> - Deputy Minister of Environment / CBD country focal point <b>Margarita Gasparyan</b> - Head of Department of Cooperation with Donors / Environmental Project Implementation Unit	Meeting with the Project IP to agree on the format of consultations with stakeholders
2-7 March	<b>Anna Mazmanyanyan</b> - Deputy Minister of Environment / CBD country focal point <b>Voskehat Grigoryan</b> - Head of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE <b>Lusine Avetisyan</b> - Head of the Strategic Policy Department / MoE <b>Ruzanna Grigoryan</b> - Head of International Affairs Department / MoE <b>Narine Hakobyan</b> - Chief specialist of Department of Land and Underground Resources, CCD country focal point / MoE	From early March the PPG National Team Leader started meetings with the Ministry of Environment respective staff, primarily to update on the project's purpose, main directions of initiative, also to agree on most effective format of their involvement during the PPG consultations, on the format of involvement of high-level officials in the sector
9 March	<b>Aram Meymaryan</b> - Deputy Minister of Environment <b>Voskehat Grigoryan</b> - Head of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE <b>Narine Hakobyan</b> - Chief specialist of Department of Land and Underground Resources	To introduce the purpose and main directions of the project to the new appointed Deputy Minister, responsible for PAs, biodiversity, forests, lands, etc.  Also, to inform on selection of project sites
10 March	<b>Voskehat Grigoryan</b> - Head of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE <b>Lusine Avetisyan</b> - Head of the Strategic Policy Department / MoE <b>Atom Mkhitarjan</b> - Senior Specialist of the Strategic Policy Department / MoE	To provide more details on the process and results of project site selection by the PPG experts team.  To discuss the MoE co-financing provided during the PIF stage, and the need to update that per the PPG period realities with a forecast for the next five years
11 March	<b>Arman Abelyan</b> - Director of Sevan National Park / SNP <b>Artak Sargsyan</b> - Senior Emergency Response Officer / SNP <b>Herbert Vardanyan</b> - Hydro-ecologist / SNP <b>Arayik Hunamyan</b> - Head of the Scientific research, monitoring and cadaster department / SNP <b>Sasun Galstyan</b> - Senior forester / SNP	To introduce the purpose and main directions of the project, Component 2 directed to Sevan National Park was highlighted.  The METT instrument (shared electronically and discussed online before the meeting) was discussed and filled together with Sevan National Park staff.
22 March	<b>Hovik Sayadyan</b> – Expert at GIZ <b>Aghasi Mnatsyan</b> – Expert at GIZ	To harmonize with GIZ project.

30 March	<p><b>Armen Yesoyan</b> - Director of Environmental Project Implementation Unit / EPIU, Ministry of Environment</p> <p><b>Armen Khojoyan</b> - Deputy Director of EPIU</p> <p><b>Rubik Shahazizyan</b> - Head of project implementation and monitoring department</p> <p><b>Margarita Gasparyan</b> - Head of Department of Cooperation with Donors</p>	<p>To introduce the focus areas of the project; to bring on agenda the cooperation of UNDP as an Oversight and of the EPIU as an Implementing Partner/IP, and the WWF as a Responsible Partner / RP role players in the Full-Sized Project</p>
31 March	<p><b>Ashot Giloyan</b> - Head of the Department of the Local Self-Government, Ministry of Territorial Administration and Infrastructure / MTAI</p> <p><b>Yeghiazar Davtyan</b> - Senior Specialist of the Department of the Local Self-Government, MTAI</p>	<p>Introduced Project objective, main directions and approaches to be applied, selected sites/communities were discussed in detail. The risks related to bordering pasture and grassland areas were touched, particularly in east of Vardenis community where foreign military troops violated Armenia sovereign borders putting under risk the use of pastureland substantive areas</p>
6 April	<p><b>Sergo Atanesyan</b> - First Deputy President of Forestry Committee</p> <p><b>Vardan Karyan</b> - Head of Hydrometeorology center / HMC</p> <p><b>Hayk Minasyan</b> - Senior Specialist – HMC</p> <p><b>Arman Shahnbaryan</b> – Deputy Head of Water Resource Management Department</p> <p><b>Ani Khachatryan</b> - Land and Underground Resources Policy Department / MoE</p> <p><b>Liana Alikhanyan</b> - Department of Water Policy / MoE</p> <p><b>Inesa Zargaryan</b> - Senior Specialist of the Forest Policy Department / MoE</p> <p><b>Artur Gevorgyan</b> - Senior Specialist of the Forest Policy Department / MoE</p> <p><b>Voskehat Grigoryan</b> - Head of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE</p> <p><b>Lusine Avetisyan</b> - Head of the Strategic Policy Department / MoE</p> <p><b>Arpine Panoyan</b> – Legal Adviser / MoE</p> <p><b>Nonna Budoyan</b> - Head of the Climate Policy Department</p> <p><b>Ani Khachatryan</b> - Senior Specialist of the International Affairs Department</p> <p><b>Yeghizar Davtyan</b> - Senior Specialist of the Department of the Local Self-Government, Ministry of Territorial Administration and Infrastructures / MTAI</p> <p><b>Arayik Hunanyan</b> – Head of the Scientific research, monitoring and cadaster department / SNP (via zoom)</p> <p><b>Rubik Shahazizyan</b> - Head of project implementation and monitoring department (via zoom)</p> <p><b>Harutyun Daveyan</b> – Senior Specialist of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department, Ministry of Economy (via zoom)</p> <p><b>Karen Manvelyan</b> - Director of WWF Armenia (via zoom)</p>	<p>During this hybrid (physical and zoom-online) meeting the PPG Project Development Consultant presented to the MoE (and subordinated agencies, institutions), MTAI, MinEconomy staff members more details on the Project approaches (LDN compatible SLM, ISLUP, etc.) on expected Outcomes, Theory of Change Framework, etc.</p> <p>In addition, the Project site selection steps, and the selected communities with demonstration areas linked to PAs, KBAs, land degraded areas, forests, irrigation areas were presented to stakeholders.</p> <p>It was agreed that for closer involvement in the design of project measures, national level stakeholders can also participate in site visits.</p>

12 April	<p><b>Hasmik Khurshudyan</b> - Associate professors of the Department of Forestry and Agroecology / National Agrarian University</p> <p><b>Arthur Alaverdyan</b> - Associate professors of the Department of Forestry and Agroecology / National Agrarian University</p> <p><b>Areg Karapetyan</b> - Associate professors of the Department of Forestry and Agroecology / National Agrarian University</p>	Presented the Project objective, implementation strategies and approaches, discussed areas to synergize activities and how the Agrarian University can be of any support.
13 April	<b>Ira Panosyan</b> - Head of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department / Ministry of Economy (combines also the Agriculture)	To introduce the objective of the Project, develop an overview on agri-environmental payment scheme for pastures and grasslands.
15 April	<p><b>PPG Team Meeting at Vayots Dzor Marzpetaran</b></p> <p><b>Ararat Grigoryan</b> – Vayots Dzor Marzpet/Governor</p> <p><b>Davit Sargsyan</b> – Deputy Marzpet</p> <p><b>Arsen Karapetyan</b> - Chief of marzpetaran staff</p> <p><b>Armen Davtyan</b> – Adviser to Marzpet</p> <p><b>Gegham Margaryan</b> – Head of Nature Protection and Agriculture Department / Marzpetaran</p> <p><b>Ashot Ghazaryan</b> – Vayots Dzor marz Forestry</p> <p><b>Mher Nikighosyan</b> - Vayots Dzor marz Forestry</p> <p><b>Gohar Khachatryan</b> – Vayots Dzor marzpetaran administration</p> <p><b>Anna Simonyan</b> - Vayots Dzor marzpetaran administration</p> <p><b>Hasmik Avetisyan</b> - Vayots Dzor marzpetaran administration</p> <p><b>Garnik Gevorgyan</b> - Vaik community: environmental protection and agriculture department head</p> <p><b>Hayk Avagyan</b> – First Deputy of Vayk community Mayor</p> <p><b>Hazarapet Nazaryan</b> – Director of Yeghegnadzor Water User Association</p> <p><b>Vardan Avagyan</b> - First Deputy of Yeghegnadzor community Mayor</p> <p><b>Garnik Khachatryan</b> – Assistant to Yeghegnadzor community Mayor</p> <p><b>Davit Ohanyan</b> – Administration of Yeghegis community</p> <p><b>Mamikon Smbatyan</b> – Head of Shatin Farmers’ Cooperative</p> <p><b>Bagrat Simonyan</b> - Association of Pasture Users Cooperative (APUC) of Rind settlement</p> <p><b>Roman Arakelyan</b> – APUC of Karmrashen settlement</p> <p><b>Armen Hakobyan</b> - Coordinator of the CARMAC II project in Vayots Dzor region</p> <p><b>Tigran Gasparyan</b> - APUC of Saravan settlement</p> <p><b>Arman Harutyunyan</b> - APUC of Arin settlement</p> <p><b>Aharon Gabrielyan</b> - APUC of Aghnjadzor settlement</p> <p><b>Nairi Saroyan</b> – Marzpetaran of Vayots Dzor</p> <p><b>Sergey Khlgatyan</b> – Marzpetaran of Vayots Dzor</p> <p><b>Aram Simonyan</b> – Yeghegis settlement</p> <p><b>Gevorg Manaseryan</b> – Marzpetaran of Vayots Dzor</p>	<p>The PPG experts presented the main goals and directions of the project, the selected communities, and the expected cooperation.</p> <p>When presenting their thematic topics, almost every one of the experts of the PPG emphasized that the project will primarily emphasize the inclusion of vulnerable groups of the population: disabled people, single women, families with lost or wounded soldiers, people temporarily resettled from Nagorno Karabakh, and others, as beneficiaries in the program's activities. Gender dimension of the project was presented.</p> <p>The objective and approaches of the Project in site selection with explanation on involvement of community in envisaged measures supporting national policies and priorities for biodiversity protection, Land Degradation Neutrality prevention-reduction-restoration was presented.</p> <p>More details are reflected in the 15 April workshop narrative.</p>



	<p><b>Hrachya Hovhannisyan</b> – Marzpetaran of Vayots Dzor</p> <p><i>Next meeting in Shatin administrative center of Yeghegis community in Vayots Dzor Marz</i></p> <p><b>Martin Sargsyan</b> - Administrative head of Salli settlement  <b>Simak Khudoyan</b> - Administrative head of Aghnjadzor  <b>Anna Danielyan</b> - Assistant to Yeghegis administrative head  <b>Manvel Abrahamyan</b> - Administrative head of Karaglukh settlement  <b>Ruben Voskanyan</b> – Accountant of Yeghegis administration  <b>Artash Artashyan</b> - Leading specialist of Yeghegis Municipality  <b>Andreas Martirosyan</b> - Responsible for municipal waste collection of Yeghegis community  <b>Lusine Hakhverdyan</b> - Clerk of Yeghegis Municipality  <b>Aram Simonyan</b> - Agriculture specialist of Yeghegis Municipality  <b>Gegham Margaryan</b> - Head of Nature Protection and Agriculture Department / Marzpetaran  <b>Vardanush Yeghoyan</b> - Lead specialist in the Salli settlement admin.</p>	
19 April	<p><b>Davit Mejlumyan</b> - CARMAC II Project Manager  <b>Karen Torosyan</b> – CARMAC II Project Component Coordinator</p>	Informed on the Project’s objective and approaches of implementation. Discussed the status of CARMAC II project and lessons to be used by the project.
20 April	<b>Staff of Hayantar SNPO</b>	Informed on the Project’s objective and approaches of implementation. Discussed the potential for cooperation.
21 April	<p><i>PPG Team Meeting at Gegharkunik Marzpetaran</i></p> <p><b>Martin Petrosyan</b> – Head of Nature Protection and Agriculture Department of Gegharkuniq marzpetaran  <b>Sevak Khighatyan</b> – Chief of Gegharkuniq Marzpetaran staff  <b>Vahagn Davtyan</b> – Deputy of Martuni Mayor  <b>Marat Ghurshudyan</b> - Head of Land Construction and Land Use Department of Gegharkunik Marzpetarat</p> <p><i>Next meeting in Martuni administrative center of Gegharkunik</i></p> <p><b>Vahagn Davtyan</b> – First Deputy of Martuni Mayor  <b>Marzpetuni Manukyan</b> - Adviser to the head of the Martuni community  <b>Harutyun Harutyunyan</b> - Head of Nature Protection and Agriculture Department of Martuni administration  <b>Papin Sirakanyan</b> – Owner of Vardadzor farm  <b>Armenak Sirakanyan</b> - Owner of Vardadzor farm  <b>Hrach Mkrtychyan</b> – Head of WUA in Gegharkunik</p>	<p>The PPG experts presented the main goals and directions of the project, the selected communities, and the expected cooperation, with explanation on involvement of community in envisaged measures supporting national policies and priorities for biodiversity protection, Land Degradation Neutrality prevention-reduction-restoration, climate vulnerability and adaptation measures.</p> <p>When presenting their thematic topics, almost every one of the experts of the PPG emphasized that the project will primarily focus the inclusion of vulnerable groups of the population: disabled people, single women, families with lost or wounded soldiers, people temporarily resettled from Nagorno Karabakh, and others, as beneficiaries in the program's activities. More details are in the 15 April workshop narrative.</p>

	<p><b>Hakob Mnacakanyan</b> - Head of the Department of Urban Development and Land Development</p> <p><b>Tatul Davtyan</b> – Head of Finance Department</p>	<p>Gender dimension of the project was presented, and issues related to unequal participation in decision-making process or access/control over natural resources was discussed. Negative perception of term “gender”.</p>
22 April	<p><b>Hazarapet Nazaryan</b> - Director of Yeghegnadzor WUA</p> <p><b>Martin Rubenyan</b> - Deputy Director of Yeghegnadzor WUA</p> <p><b>Vahan Markosyan</b> - Head of the Taratumb settlement of Yeghegis</p> <p><b>Aris Kirakosyan</b> - Resident of Taratumb settlement</p>	<p>Meetings conducted with WUA and community leaders, as well as farmers to discuss details on irrigation areas and on conditions of hydro-technical structures of irrigation water supply systems.</p>
26 April	<p><b>Hrach Markosyan</b> - Engineer of the Martuni branch of "Gegharkunik" Water User Association / WUA</p> <p><b>Levon Nikoghosyan</b> – Chief Specialist of the Vardenis branch of "Gegharkunik" WUA</p> <p><b>Vahe Badalyan</b> - Engineer of Vardenis branch /"Gegharkunik" WUA</p> <p><b>Mher Kirakosyan</b> - Director of Shoghakat branch of Sevan NP</p> <p><b>Melanya Osepyan</b> - Director of the Shoghakat school</p> <p><b>Gayane Baghdasaryanc</b> - Biology teacher at Shoghakat school</p> <p><b>Ruzan Hovhannisyan</b> - Director of the Tsovak secondary school + the staff of the school (total ca. <b>40 persons</b>)</p> <p><b>Tatul Baghdasaryan</b> - Director of Martuni branch of Sevan NP</p> <p><b>Hamlet Khimoyan</b> - Former forester of Martuni branch</p> <p><b>Mariam Kosakyan</b> - Hyur service Dep. Dir. Operations</p>	<p>A meeting was held with the employees of the Vardenis and Martuni branches of the Gegharkunik WUA, the irrigation problems, the condition and needs of the hydro-technical structures were discussed.</p> <p>Illegal grazing issues in Artanish reserve was touched. Tourism in Sevan NP.</p> <p>In Shoghakat and Tsovak participation of schools in bioindication of flowing waters was discussed. In Tsovak also cases of illegal hunting on waterfowl in the adjacent territory of Sevan NP.</p> <p>Illegal grazing issues in Argishi-Lichk reserve, Forest fires, grazing, firebreaks cleansing, forest restoration.</p>
29 April	<p><b>Arman Khojoyan</b> - Deputy Minister of Economy</p> <p><b>Ira Panosyan</b> - Head of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department / Ministry of Economy</p>	<p>To introduce the objective of the Project, develop an overview on agri-environmental payment scheme for pastures and grasslands, and agree on the format of necessary discussions on elements of the scheme.</p>

<p>04 May</p> <p>Separate meetings with school, NGO, administration, WUA staff in Martuni, Vardenis and Shoghakat communities</p>	<p><b>NGO - "Municipal Women Council of Martuni"</b></p> <p><b>Manan Mkhitarian</b> – Community Mobilization Specialist  <b>Armen Hayrapetyan</b> – Coordinator of Projects / Accountant  <b>Meruzhan Galstyan</b> – Expert</p> <p><b>Martuni School # 2</b></p> <p><b>Khanum Ghazaryan</b> – Director of Martuni #2 School  <b>Anna Mnatsakanyan</b> – Biology teacher in Martuni #2 school</p> <p><b>Martuni and Vardenis Water User Associations</b></p> <p><b>Norik Aghasyan</b> – Martuni WUA responsible  <b>Levon Nikoghosyan</b> – Vardenis Community WUA staff  <b>Vahe Badalyan</b> - Vardenis Community WUA staff  <b>Martik Hakobyan</b> - Vardenis Community WUA staff  <b>Mesrop Asatryan</b> - Vardenis Community WUA staff</p> <p><b>Martuni Community Administration</b></p> <p><b>Karen Mkhitarian</b> – First Deputy Mayor of Vardenis  <b>Artur Zanoyan</b> - Head of the Vardenis Municipality staff  <b>Hovannes Hoveyan</b> - Head of Martuni Community  <b>Hrach Markosyan</b> - Hrach Markosyan, engineer of the Martuni site of "Gegharkunik" WUA</p> <p><b>Shoghakat Community Administration</b></p> <p><b>Suliko Shushanyan</b> – Head of Shoghakat Community / Mayor</p>	<p>The PPG team members introduced the objective of the Project, approaches of Project in site selection with explanation on involvement of community members including school children, teachers, NGO staff, discussed their capacities and need for improvement, their responsibilities and expected actions for protection of natural resources, particularly for adjacent Protected Area of Sevan National Park.</p> <p>With WUA staff the discussion was on discuss details on irrigation areas and on hydro-technical conditions of irrigation water supply systems in the Vardenis community consolidating 36 settlements/villages located close to the state border and hosting many refugees from Nagorno Karabakh after the 2020 military hostilities.</p> <p>The PPG team shared on the expected cooperation, with explanation on involvement of community in envisaged measures supporting national policies and priorities for biodiversity protection, Land Degradation Neutrality prevention-reduction-restoration, climate vulnerability and adaptation measures.</p>
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<p>5 May</p>	<p><b>Yeghegnadzor Community Administration</b></p> <p><b>Davit Harutyunyan</b> – Mayor of Yeghegnadzor Community / Vayots Dzor marz</p> <p><b>Hrachya Vardanyan</b> – Deputy Mayor of Yeghegnadzor community</p> <p><b>Gegham Margaryan</b> – Head of Nature Protection and Agriculture Department / Marzpetaran</p> <p><b>Vardan Avagyan</b> – First Deputy Mayor of Yeghegnadzor</p> <p><b>Vardan Harutyunyan</b> – Farmer</p> <p><b>Vayk Community Administration</b></p> <p><b>Hayk Avagyan</b> – Deputy Mayor of Vayk community</p> <p><b>Garnik Gevorgyan</b> - Head of Nature Protection and Agriculture Department of Vayk community administration / Mayor’s office</p> <p><b>Felix Muradyan</b> – Senior Specialist in Nature Protection and Agriculture Department / Vayk community</p> <p><b>Garik Gevorgyan</b> – Nature Protection Specialist in Vayk community administration</p> <p><b>Manvel Gevorgyan</b> – Operator of Artavan WUA</p> <p><b>Ashot Ghazaryan</b> – Senior Forester in Vayk branch / State Forestry</p> <p><b>Norayr Hovakimyan</b> – Head of Development Projects</p> <p><b>Vachik Karapetyan</b> - Agronomist from Zaritap village</p> <p><b>Tour-Operator in Vayk</b></p> <p><b>Shirak Mikaelyan</b> – Funding Director - Time Tour NGO in Vayk</p> <p><b>Ruzan Ghazaryan</b> - President, The Job and Homeland Territorial Development NGO</p> <p><b>Yeghegis Community Administration</b></p> <p><b>Davit Ohanyan</b> – Deputy Mayor of Yeghegis Community</p> <p><b>Aram Simonyan</b> – Head of Nature Protection and Agriculture Department of Yeghegis Community Administration</p>	<p>The objective of the Project, approaches of Project in site selection with explanation on involvement of community in envisaged measures supporting national policies and priorities for biodiversity protection, Land Degradation Neutrality prevention-reduction-restoration, climate vulnerability and adaptation measures. The big forest fire in Artavan (2019) was touched and requested to support with restoration measures and making irrigation water available for adjusting lands, floristries.</p> <p>The high loss of water resources and the need for shifting to innovative irrigation (where water supply is available) was discussed.</p> <p>Damage from the bears to the property of local inhabitants in Zaritap community was raised.</p> <p>Tourism-related aspects, perspectives were discussed.</p> <p>Introduction of UNDP/GEF project, discussions on how the NGO and the LCC could input in achieving the project goals.</p> <p>Project objective, planned measures, climate impact, forest overuse, ect. were discussed.</p>
<p>06 May</p>	<p><b>Gegham Margaryan</b> – Head of Nature Protection and Agriculture Department / Marzpetaran</p> <p><b>Norayr Hovakimyan</b> – Head of Development Projects / Marzpetaran</p> <p><b>Felix Muradyan</b> – Senior Specialist in Nature Protection and Agriculture Department /Vayk community</p> <p><b>Garik Gevorgyan</b> – Nature Protection Specialist in Vayk community</p> <p><b>Vardan Harutyunyan</b> – Farmer</p>	<p>The project objective was introduced to community representatives, discussed on their current livelihood models and potential more nature positive alternatives, project’s main directions to support with alternative agricultural and tourism related practices.</p>
<p>06 May</p>	<p><b>Meri Sahakyan</b> - Project/Programme Associate / FAO</p> <p><b>Antonin Kusbach</b> - International Forest Resilience and Climate Change Mitigation Consultant / FAO</p>	<p>An overview, main focus areas, approaches on the project was shared, full NIM project implementation management-operational arrangements were touched.</p>



13 May	<p><b>Hayk Avagyan</b> - First Deputy Head of Vayk community</p> <p><b>Garnik Gevorgyan</b> - Head of Agriculture and Environmental Protection Department of Vaik community</p> <p><b>Shmavon Azatyan</b> – Agronomist in the Agriculture and Environmental Protection Department of Vayk community</p>	<p>During the meeting with representatives of Vayk/Artavan/Gomq settlements /villages the water resource, irrigation supply systems, hydro-technical condition of the existing ones and the need for rehabilitation and installation of alternative more effective supply system for this near-boarder communities was discussed.</p>
16 – 17 May	<p><b>Vayots Dzor Communities</b></p> <p><b>Mkhitar Matevosyan</b> - Head of Vayk community</p> <p><b>Hayk Avagyan</b> - First Deputy Head of Vayk community</p> <p><b>Garnik Gevorgyan</b> - Head of the Department of Agriculture and Environmental Protection of the Vayk Community Staff</p> <p><b>Norayr Hovakimyan</b> - Head of Vayk community staff development programs, social support and healthcare issues department</p> <p><b>Hunan Ohanyan</b> - Administrative head of Khndzorut settlement</p> <p><b>Arsen Aleksanyan</b> - Administrative head of Bazhruni settlement</p> <p><b>Khalat Soghomonian</b> - Administrative head of Martiros settlement</p> <p><b>Davit Ohanyan</b> - Deputy head of Yeghegis community</p> <p><b>Anna Danielyan</b> - Secretary of Yeghegis community staff</p> <p><b>Murad Ohanyan</b> - leading specialist of Yeghegis community staff</p> <p><b>Shushanik Danielyan</b> - responsible for tourism and economic development of Yeghegis community</p> <p><b>Artur Karamyan</b> - Administrative head of Horbategh settlement</p> <p><b>Armen Setrakyan</b> - Administrative head of Artabuynk settlement</p> <p><b>Armen Hakobyan</b> - Administrative head of Yeghegis settlement</p>	<p>The objective of the Project, approaches of Project in site selection with explanation on involvement of community in envisaged measures supporting national policies and priorities for biodiversity protection, Land Degradation Neutrality prevention-reduction-restoration, climate vulnerability and adaptation measures.</p>
18 May	<p><b>Vardenis Community Administration</b></p> <p><b>Aharon Khachatryan</b> – Head of Vardenis community / Mayor</p> <p><b>Karen Mkrtvhyan</b> – Forst Deputy of Vardenis community</p> <p><b>Khoren Badalyan</b> – Manager of Gagharkunik CARMAC II office</p> <p><b>Artak Margaryan</b> – Senior Specilaist of Nature Protection and Agriculture Department of Vardenis Community</p> <p><b>Manvel Gevorgyan</b> - Head of Nature Protection and Agriculture Department of Vardenis Community</p> <p><b>Aram Yeranossyan</b> – Farmer in Vardenis Community</p> <p><b>Khazhak Mkrtchyan</b> – Adviser to the Mayor of Vardenis</p> <p><b>Martuni Community Administration</b></p> <p><b>Hovik Hoveyan</b> - Head of Martuni community / Mayor</p>	

<p>19 – 20 May</p>	<p><b>Gegharkunik Communities</b></p> <p><b>Martin Petrosyan</b> – Head of Nature protection and Agriculture Department</p> <p><b>Siras Ohanyan</b> - Head of Nature protection division of Gegharkunik marzpetaran</p> <p><b>Suliko Shushanyan</b> - Head of Shoghakat community</p> <p><b>Robert Shushanyan</b> - administrative head of Artanish settlement</p> <p><b>Suren Demirchyan</b> - First class specialist of Shoghakat community staff</p> <p><b>Anna Vardanyan</b> - Chief specialist of Shoghakat community staff</p> <p><b>Ramella Ghulyan</b> - Shoghakat community staff secretary</p> <p><b>Karen Mkrtchyan</b> - first deputy head of Vardenis community</p> <p><b>Artak Hunanyan</b> - Chief Specialist of the Department of Agriculture and Environmental Protection of Vardenis Municipality</p> <p><b>Artyom Mkrtchyan</b> - Head of Purchases, Development Programs and Tourism Department of Vardenis Municipality</p> <p><b>Bakhshi Alaverdyan</b> - Administrative head of Pambak settlement</p> <p><b>Hayk Azaryan</b> - Leading specialist of the staff of Pambak settlement</p> <p><b>Armen Avetyan</b> - Administrative head of Geghamasar settlement</p> <p><b>Vahagn Davtyan</b> – First deputy head of Martuni community</p> <p><b>Rubik Sirakanyan</b> - Administrative head of Artsvanist settlement</p> <p><b>Mkhitar Aleksanyan</b> - Administrative head of Astghadzor settlement</p> <p><b>Ruben Zuloyan</b> - Administrative head of Nerkin Getashen settlement</p> <p><b>Tigran Muradyan</b> – Administrative head of Verin Getashen settlement</p>	<p>The project objective was introduced to community representatives, discussed on their current livelihood models and potential more nature positive alternatives, project’s main directions to support with alternative agricultural and tourism related practices.</p>
<p>19 May</p>	<p><b>Ira Panosyan</b> – Head of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department, Ministry of Economy</p> <p><b>Harutyun Daveyan</b> - Senior Specialist of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department, Ministry of Economy</p> <p><b>Yeghiazar Davtyan</b> - Senior Specialist of the Department of the Local Self-Government, Ministry of Territorial Administration and Infrastructures / MTAI</p> <p><b>Ashot Khoyetsyan</b> – Adviser to the MTAI Minister</p> <p><b>Hakob Martirosyan</b> - Senior Specialist of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE</p>	<p>The role of different governing bodies – ministries, communities, FIs, academia, etc, in the agri-environmental payment scheme was discussed. The MinEconomy’s position was that the scheme should be invested in and supported at the community level.</p> <p>After several other discussions with the MinEconomy staff, particularly with the Mnister (at other project supported event) the above position was changed in favor of inclusion of pastures’ in the state subsidy programmes for agriculture development.</p>

1 June	<b>Bardukh Gabrielyan</b> – Director at Scientific Center of Zoology and Hydroecology of NAS Armenia	Intersectoral Committee of Lake Sevan coordination was discussed, summarizing that the Vice Prime Minister’s level chairmanship is the most relevant status.
2 - 3 June	<p><b>Karen Mnacakanyan</b> – Director of Sevan National Park, i.a</p> <p><b>Arayik Hunanyan</b> – Head of the Scientific research, monitoring and cadaster department / SNP</p> <p><b>Artak Sargsyan</b> - Senior Emergency Response Officer, Shift Officer of Sevan National Park</p> <p><b>Husik Hakobyan</b> - Head of Sevan National Park Noratus branch</p> <p>Fisherman in Noratus</p> <p>Patrol of SNP in Gavar</p> <p>Fisherman in Noratus</p> <p>Fish reseller in Noratus</p> <p><b>Tatul Baghdasaryan</b> – Head of Sevan National Park Noratus branch</p> <p><b>Oleg Dadikyan</b> – Former Mayor of Berdkunq Community and fisherman + 2 sons-fishermen</p> <p><b>Virab Arakelyan</b> – Fisherman in Martuni (leaves in Noratus)</p> <p><b>Kamsar Melkonyan</b>– Fisherman in Martuni (leaves in Noratus)</p> <p><b>Jack Sargsyan</b> - Head of Sevan National Park Vardenis branch</p> <p><b>Rado Poghosyan</b> - Fisherman in Vardenis</p> <p><b>Grigor Khachatryan</b> - Fisherman and Farmer in Tsovak /Vardenis</p>	Illegal fishing and fish sailing issues were discussed and what should be the most appropriate measures for achieving consensus on elimination of illegal fishing.
8 June	<p><b>Lusine Avetisyan</b> - Head of the Strategic Policy Department / MoE</p> <p><b>Voskehat Grigoryan</b> - Head of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE</p> <p><b>Artur Ghavalyan</b> - Deputy Head of the Strategic Policy Department / MoE</p> <p><b>Arsen Nikoyan</b> - Deputy Head of the International Affairs Department / MoE</p>	Agri-environmental payment scheme, the role of MoE as payer for achieved KPI outcomes.
9 June	<b>Ashot Giloyan</b> - Head of the Department of the Local Self-Government, MTAI	MTAI subvention programmes, support to pasture degradation prevention-reduction-restoration measures
14 June	<p><b>Karen Petrosyan</b> – CEO Credit Concept UCO</p> <p><b>Manuk Petrosyan</b> – Deputy CEO Credit Concept UCO</p>	

15-16 June	<p><b>Stepan Vardanyan</b> – Chief Specialist, Economic Development Officer in Jermuk Municipality</p> <p><b>Artak Bagratyan</b> - Administrative head of Kechut village, Jermuk Community</p> <p><b>Mkhitar Matevosyan</b> – Mayor of Vayk Community</p> <p><b>Anna Danielyan</b> – Staff secretary of Yeghegis Community/ Head of the Yeghegis Municipality staff</p> <p><b>Vahagn Davtyan</b> – First Deputy of Martuni Mayor</p> <p><b>Harutyun Harutyunyan</b> - Head of Nature Protection and Agriculture Department of Martuni administration / Mayor’s office</p> <p><b>Vardan Manukyan and department staff</b> - Head of Nature Protection and Agriculture Department of Vardenis administration</p> <p><b>Suliko Shushanyan</b> – Head of Shoghakat Community Administr. / Mayor</p>	<p>Gender analysis, gender norms and roles, access to and control over natural resources, participation in decision-making in environmental planning and management, access to social and economic benefits and services, channels of information distribution.</p> <p>Existing NGOs, cooperatives, farms etc.</p> <p>During meetings were discussed possible actions to overcome existing barriers.</p>
22 June	<p><b>Gagik Israelyan</b> - Manager of Corporate Finance Division of Agribusiness Financing Department / CONVERSE BANK CJSC</p> <p><b>Aram Mkhitaryan</b> - Executive Director of Agroleasing LCO Company</p> <p><b>Vachik Danielyan</b> - Senior Specialist of agricultural loans / ARMECONOMBANK OJSC</p> <p><b>Hayk Bagratuni</b> - Head of Energy and Agriculture Department Financing / ARMBUSINESSBANK CJSC "AGRO-CREDIT"</p> <p><b>Marine Afyan</b> - Head of Corporate Customer Service and Business Development Department / ARMBUSINESSBANK CJSC "AGRO-CREDIT"</p> <p><b>Karen Petrosyan</b> - Chief Executive Officer / CREDIT CONCEPT UCO</p> <p><b>Aram Ghukasyan</b> - Deputy Executive Director / GLOBAL CREDIT CJSC</p> <p><b>Sergey Gasparyan</b> – Business Management Director / FAST CREDIT CAPITAL UCO</p> <p><b>Sona Suvaryan</b> – Head of Department for Cooperation with Financial Inst. / FAST CREDIT CAPITAL UCO</p> <p><b>Mushegh Petrosyan</b> – Deputy GGT / Operations Director / FARM CREDIT ARMENIA UCO</p> <p><b>David Shushanyan</b> – Corporate Business Development and Sales Director / UNIBANK</p> <p><b>Vardan Sargsyan</b> - Senior Specialist on SME and agricultural business / ACBA BANK</p> <p><b>Mkhitar Azatyan</b> – Executive Director / AGRO-CREDIT CARD</p> <p><b>Edgar Galstyan</b> – Executive Director / ANIV UCO LLC</p> <p><b>Lilit Garayan</b> - Co-founder and CEO / ADWISE CONSULTING</p> <p><b>Ira Panosyan</b> – Head of Agricultural Programs Elaboration, Resource Use and Cooperative Development Department / Ministry of Economy</p>	<p>The workshop was dedicated to involving financial institutions in the agri-environmental payment scheme as potential investors.</p> <p>Minutes of the workshop is attached Annex 2 to this document.</p>

	<p><b>Narine Hakobyan</b> – Chief specialist of Department of Land and Underground Resources, CCD national focal point / MoE</p> <p><b>Hakob Martirosyan</b> – Senior Specialist of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE</p> <p><b>Meri Harutyunyan</b> – Lead Specialist in the Strategic Policy Department / MoE</p> <p><b>Yeghiazar Davtyan</b> - Senior Specialist of the Department of the Local Self-Government, Ministry of Territorial Administration and Infrastructures / MTAI</p>	
27 June	<b>Anahit Navasardyan – Shen NGO</b>	Discussed about organisation’s experience of involving women in decision makings, natural resource management, establishing cooperatives, empowering women, gender dimensions of their implemented projects, etc.
28 June	<b>Dshkhuhi Sahakyan - REC Caucasus</b> <b>Astghine Pasoyan – Director of Energy Saving Foundation</b>	Gender issues related to natural resource management, usage of solar energy and energy efficiency measures in rural areas. Consulted on importance of energy renovations for women and its impact.
1 July	<b>Karen Mukhsyan</b> – Head of Department for Territorial Development and Environmental Issues	Consulted on Intersectoral coordination of Sevan related aspects. The expressed vision focuses that the intersectoral coronation body/Committee should be chaired at the Vice Prime Minister’s level.
3-8 July	<b>Karen Aghababyan</b> - Legal advisor of the ENV, president, NGO	Discussions on indicator species, mainly on birds, project indicator species, pasture indicator species, river indicator species, fish indicator species
6 July	<b>Nune Sarukhanyan</b> - President at Green Lane Agricultural Assistance NGO	Discussed about organization’s experience of involving women in decision makings, natural resource management, establishing cooperatives, empowering women, working with women groups, gender dimensions of their implemented projects, etc.
13 July	<p><b>Anahit Gevorgyan</b> - President of "Municipal Women Council of Martuni"</p> <p><b>Tatevik Grigryan</b> - Martuni Sports and Culture NGO</p> <p><b>Liana Asoyan</b> - "Blejan" environmental, social, business support NGO</p> <p><b>Ani Yeghiazaryan</b> - Labor and Motherland NGO</p> <p><b>Lusine Toplaghaltsyan</b> - Sakharov Center, Gegharkunik branch</p> <p><b>Tatevik Vardanyan</b> – Women in climate and energy NGO</p> <p><b>Vahram Hoveyn</b> – Bayazet Center NGO</p>	The meeting was dedicated to introducing the project to the Civil Society organizations, on their potential role in the project. All NGOs have wide experience of conducting training in nature and agricultures related topics, are capable to be involved in monitoring of natural resource use, they can have an important role contributing in decision making at the community/settlement level, being pat in the Advisory Committees to be established at

		Community level. NGOs are very well aware on socially vulnerable people from their other projects, are skilled in empowering women, and know their population habits, traditions, very well.
14 July	<p><b>Voskehat Grigoryan</b> - Head of the Specially Protected Areas of Nature and Biodiversity Policy Department / MoE</p> <p><b>Lusine Avetisyan</b> - Head of the Strategic Policy Department / MoE</p> <p><b>Atom Mkhitarian</b> - Senior Specialist of the Strategic Policy Department / MoE</p> <p><b>Tigran Gabrielyan</b> – Deputy Minister of Environment</p>	<p>Technical discussion was conducted with the Ministry of Environment different level staff on agri- environmental payment scheme, and on the role of the MoE in that scheme.</p> <p>The KPI for assessed results and payment according to the achieved results was discussed, as well as the MoE budget structures to reflect the budget for agri- environmental payment.</p>
22 July	<p><b>PPG Validation Workshop</b></p> <p>Total 47 persons from institutions, including the Ministries of Environment, Economy, Territorial Admonstration and Infrastructures, Cadastre Committee, Water Committee, "Hayantar", "Hydrometeorology and Monitoring Center", "Sevan" National Park, Gegharkunik and Vayots Dzor regional governorates, Vayk, Shoghakat, Martuni, Vardenis local governments, WWF Armenia, FAO, GIZ, "Martuni Women's Council", Martuni Sports and cultural NGOs and other representatives participated in-person and via zoom</p>	Detailed Minutes of the Validation Workshop is attached to the Project Document.
05 August	<p><b>Meetings with Pasture User Cooperatives</b></p> <p><b>Vayots Dzor Communities</b></p> <p><b>Aharon Gabrielyan</b> – Head of Aghnjadzor/Yeghegis Pasture user cooperative / PUC</p> <p><b>Samvel Harutyunyan</b> – Head of Zaritap /Vayk PUC</p> <p><b>Mamikon Smbatyan</b> - Head of Shatin/Yeghegis PUC</p> <p><b>Roman Arakelyan</b> - Head of Karnrashen/Vayk PUC</p> <p><b>Armen Hakobyan</b> – CARMAC II coordinator in Vayots Dzor marz</p> <p><b>Gegharkunik Communities</b></p> <p><b>Abgar Harutyunyan</b> - Head of Akhpradzor/Vardenis PUC</p> <p><b>Kamo Ghazaryan</b> - Head of Ayrk/Vardenis PUC</p> <p><b>Armen Avetisyan</b> - Head of Verdenik/Martuni Administration</p> <p><b>Manvel Melkonyan</b> – Member of Vardenik PUC, Leading specialist in Vardenik Administration</p> <p><b>Manvel Badalyan</b> - Member of Vardenik PUC, Specialist in communal department of Vardenik Administration</p> <p><b>Armen Shahinyan</b> - Head of Vaghashen/Martuni Administration</p> <p><b>Haykaram Topchyan</b> - Head of Tsovinar/Martuni Administration</p> <p><b>Arman Avalyan</b> – Assistant to the Head of Shoghakat Administr.</p>	Meetings with Administrators/Heads of settlements and Pasture Users Cooperatives in Vayots Dzor and Gegharkuni marzes was dedicated to explaining them on the agri- environmental payment scheme, on financial mechanisms, pre- and after- improvement assessments of pastures, and on KPIs to be measured.

	<b>Albert Khachatryan</b> – Martuni Administration <b>Khoren Badalyan</b> - CARMAC II coordinator in Gegharkunik marz	
During April – May	<b>340 + 44</b> -interviewed under the Study for <i>Behavior Change</i>	The purpose of the survey was to study the experience and accepted practices of stakeholders (representatives of large and small farms, local government representatives, experts, etc.) in the use of land, water, pastures, forests and biodiversity resources in the target communities, to remove the obstacles to the formation of the desired models of more responsible behavior of pasture users towards the use of resources.
During May - June	<b>388 + 89-respondents</b> (on Gender mainstreaming and Women Empowerment) from target communities of which women - 60%, men - 40% and young people - 30%	They responded to a questionnaire with 5 blocks of questions: 1) general characteristics of the respondent (sex, age, region of residence, education, employment, material wealth, etc.) 2) the main socio-economic and 3) environmental aspects that affect the life of people 4) the impact of people on the environment suggestions on actions needed suggestions on actions needed
<b>In total up to 477 persons were consulted during the PPG phase.</b>		

**Annex 9: Environmental Social Management Framework (ESMF) and other SES frameworks/plans**

(Please see separate report)



## Annex 10: Gender Analysis and Gender Action Plan

(Please see separate document)

## Annex 11: Initial Procurement Plan

Procurement/HR	Output	Q1	Q2	Q3	Q4	Estimated available budget / full contract (USD)
Project management (HR) to be hired by IP and RP						
Project Manager (Salary split across all components)	All	x				90,000
Technical, Financial and Administrative Assistant (Salary from PM budget)	All	x				48,000
Procurement Assistant (Salary from PM budget)	All	x				48,000
3 x Task Leaders (3 positions)	Comp 1,2,3	x				3x72,000 (216,000)
Component 1 (consultants to be hired by IP)						
Land use expert	Output 1.1.1 /Output 1.1.2		x			10,000
GIS Specialist	Output 1.1.1/Output 1.1.2		x			15,000
Soil specialist	Output 1.1.1/1.1.2/3.1.1/3.1.2		x			10,000
2x Pastures and Forests experts (2 positions)	Output 1.1.1/1.1.2/3.1.1		x			12,000
Irrigation and Crop water requirements specialist	Output 1.1.1/1.1.2/3/1/3)		x			6,000
Economist/Land degradation expert	Output 1.1.1/1.1.2			x		8,000
International LDN expert	Output 1.1. /1.1.2			x		37,500
International Land use planning expert	Output 1.1.2			x		37,500
Component 2 + Output 3.1.4 (hired by RP)						
GIS specialist	Output 2.1.1/2.2.1		x			15,000
Zoologist	Output 2.1.1/2.2.1/4.1.2/3.1.1/3.1.4		x			16,000
Ornithologist	Output 2.1.1/2.2.1/4.1.1/3.1.1; 3.1.4		x			16,000
Botanist	Output 2.1/2.2/2.3/3.1.1.3.1.4; 3.1.4					14,000
Freshwater ecosystem specialist	Output 2.1.1/3.1.2		x			16,000
Capacity development specialist PA (TNA)	Output 2.2		x			3,000
Senior Communication/PR specialist	Outputs 2.1.1-2.2.1/ 3.1.4		x			30,000
Component 3						
Economist/Technical expert on rural livelihoods	Output 3.1.1	x				4,500
Senior tourism expert/rural green tourism expert	Output 3.1.2 / 2.1.2					4,500
Component 3 (hired by IP)						
2 x Pasture agronomist	Output 3.1.1;		x	x		2x 25,000 (50,000)
Botanist (for Pastures Biodiversity indicators AgriEnvPayment Scheme)	Output 3.1.1;			x		9,000
Zoologist (for pastures Biodiversity Indicators AgriEnvPayment Scheme)	Output 3.1.1;			x		9,000
Forestry expert	Output 3.1.3			x		10,000
Hydrologist	Output 3.1.2		x			12,000
Irrigation and crop water requirements expert	Output 3.1.2		x			10,000
Component 4 (hired by IP)						
Senior PR/Communication Specialist	Output 4.1.1/4.1.2	x				30,000
Gender expert	Across outputs			x		30,000
Component 5 (hired by IP)						
M&E and GEB Expert	Output 5.1/5.2 and across outputs			x		50,000
Technical advice across outputs (hired by IP but also supporting RP as well)						
International Technical Advisor	Across outputs		x			112,500

## Annex 12: GEF Core Indicators

Core Indicator 1		Terrestrial protected areas created or under improved management for conservation and sustainable use				(Hectares)			
		Hectares (1.1+1.2)							
		Expected			Achieved				
		PIF stage	Endorsement	MTR	TE				
		147,456	147,456						
Indicator 1.1		Terrestrial protected areas newly created							
Name of Protected Area	WDPA ID	IUCN category	Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
		(select)							
		(select)							
		Sum							
Indicator 1.2		Terrestrial protected areas under improved management effectiveness							
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score					
				Baseline		Achieved			
					Endorsement	MTR	TE		
<i>Sevan National Park</i>		II National Park	147,456		37				
		Sum	147,456						
Core Indicator 2		Marine protected areas created or under improved management for conservation and sustainable use				(Hectares)			
		Hectares (2.1+2.2)							
		Expected			Achieved				
		PIF stage	Endorsement	MTR	TE				
Indicator 2.1		Marine protected areas newly created							
Name of Protected Area	WDPA ID	IUCN category	Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
		(select)							
		(select)							
		Sum							
Indicator 2.2		Marine protected areas under improved management effectiveness							

Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score			
				Baseline		Achieved	
				PIF stage	Endorsement	MTR	TE
		(select)					
		(select)					
		Sum					
<b>Core Indicator 3</b>	<b>Area of land restored</b>						<b>(Hectares)</b>
			Hectares (3.1+3.2+3.3+3.4)				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
			2,200	2,200			
<b>Indicator 3.1</b>	<b>Area of degraded agricultural land restored</b>						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
<b>Indicator 3.2</b>	<b>Area of forest and forest land restored</b>						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
			2,200	2,200			
<b>Indicator 3.3</b>	<b>Area of natural grass and shrublands restored</b>						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
<b>Indicator 3.4</b>	<b>Area of wetlands (including estuaries, mangroves) restored</b>						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	

<b>Core Indicator 4</b>	<b>Area of landscapes under improved practices (hectares; excluding protected areas)</b>				<b>(Hectares)</b>	
		Hectares (4.1+4.2+4.3+4.4)				
		Expected		Expected		
		PIF stage	Endorsement	MTR	TE	
		165,800	165,800			
<b>Indicator 4.1</b>	<b>Area of landscapes under improved management to benefit biodiversity</b>					
		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
		150,000	150,000			
<b>Indicator 4.2</b>	<b>Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations</b>					
Third party certification(s):		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
<b>Indicator 4.3</b>	<b>Area of landscapes under sustainable land management in production systems</b>					
		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
		15,800	15,800			
<b>Indicator 4.4</b>	<b>Area of High Conservation Value Forest (HCVF) loss avoided</b>					
Include documentation that justifies HCVF		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
<b>Core Indicator 5</b>	<b>Area of marine habitat under improved practices to benefit biodiversity</b>				<b>(Hectares)</b>	
<b>Indicator 5.1</b>	<b>Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations</b>					
Third party certification(s):		Number				
		Expected		Achieved		

			PIF stage	Endorsement	MTR	TE	
<b>Indicator 5.2</b>	<b>Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial</b>						
			<b>Number</b>				
			<b>Expected</b>		<b>Achieved</b>		
			PIF stage	Endorsement	MTR	TE	
<b>Indicator 5.3</b>	<b>Amount of Marine Litter Avoided</b>						
			<b>Metric Tons</b>				
			<b>Expected</b>		<b>Achieved</b>		
			PIF stage	Endorsement	MTR	TE	
<b>Core Indicator 6</b>	<b>Greenhouse gas emission mitigated</b>					<i>(Metric tons of CO<sub>2</sub>e)</i>	
			Expected metric tons of CO <sub>2</sub> e (6.1+6.2)				
			PIF stage	Endorsement	MTR	TE	
		Expected CO <sub>2</sub> e (direct)	1,403,851	1,403,851			
		Expected CO <sub>2</sub> e (indirect)					
<b>Indicator 6.1</b>	<b>Carbon sequestered or emissions avoided in the AFOLU sector</b>						
			Expected metric tons of CO <sub>2</sub> e				
			PIF stage	Endorsement	MTR	TE	
		Expected CO <sub>2</sub> e (direct)	1,403,851	1,403,851			
		Expected CO <sub>2</sub> e (indirect)					
		Anticipated start year of accounting	2021	2022			
		Duration of accounting	20	20			
<b>Indicator 6.2</b>	<b>Emissions avoided Outside AFOLU</b>						
			Expected metric tons of CO <sub>2</sub> e				
			<b>Expected</b>		<b>Achieved</b>		
			PIF stage	Endorsement	MTR	TE	
		Expected CO <sub>2</sub> e (direct)					
		Expected CO <sub>2</sub> e (indirect)					
		Anticipated start year of accounting					

	Duration of accounting							
<b>Indicator 6.3</b>	<b>Energy saved</b>							
			<b>MJ</b>					
			<b>Expected</b>		<b>Achieved</b>			
			<b>PIF stage</b>	<b>Endorsement</b>	<b>MTR</b>	<b>TE</b>		
<b>Indicator 6.4</b>	<b>Increase in installed renewable energy capacity per technology</b>							
		<b>Technology</b>	<b>Capacity (MW)</b>					
			<b>Expected</b>		<b>Achieved</b>			
			<b>PIF stage</b>	<b>Endorsement</b>	<b>MTR</b>	<b>TE</b>		
		(select)						
		(select)						
<b>Core Indicator 7</b>	<b>Number of shared water ecosystems (fresh or marine) under new or improved cooperative management</b>							<b>(Number)</b>
<b>Indicator 7.1</b>	<b>Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation</b>							
		<b>Shared water ecosystem</b>	<b>Rating (scale 1-4)</b>					
			<b>PIF stage</b>	<b>Endorsement</b>	<b>MTR</b>	<b>TE</b>		
<b>Indicator 7.2</b>	<b>Level of Regional Legal Agreements and Regional Management Institutions to support its implementation</b>							
		<b>Shared water ecosystem</b>	<b>Rating (scale 1-4)</b>					
			<b>PIF stage</b>	<b>Endorsement</b>	<b>MTR</b>	<b>TE</b>		
<b>Indicator 7.3</b>	<b>Level of National/Local reforms and active participation of Inter-Ministerial Committees</b>							
		<b>Shared water ecosystem</b>	<b>Rating (scale 1-4)</b>					
			<b>PIF stage</b>	<b>Endorsement</b>	<b>MTR</b>	<b>TE</b>		
<b>Indicator 7.4</b>	<b>Level of engagement in IWLEARN through participation and delivery of key products</b>							
		<b>Shared water ecosystem</b>	<b>Rating (scale 1-4)</b>					
			<b>Rating</b>		<b>Rating</b>			
			<b>PIF stage</b>	<b>Endorsement</b>	<b>MTR</b>	<b>TE</b>		

<b>Core Indicator 8</b>	<b>Globally over-exploited fisheries Moved to more sustainable levels</b>					<b>(Metric Tons)</b>
Fishery Details			Metric Tons			
			PIF stage	Endorsement	MTR	TE
<b>Core Indicator 9</b>	<b>Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products</b>					<b>(Metric Tons)</b>
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
<b>Indicator 9.1</b>	<b>Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)</b>					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
(select)	(select)	(select)				
(select)	(select)	(select)				
(select)	(select)	(select)				
<b>Indicator 9.2</b>	<b>Quantity of mercury reduced</b>					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Indicator 9.3</b>	<b>Hydrochlorofluorocarbons (HCFC) Reduced/Phased out</b>					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Indicator 9.4</b>	<b>Number of countries with legislation and policy implemented to control chemicals and waste</b>					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Indicator 9.5</b>	<b>Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities</b>					
		Technology	Number			



			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Indicator 9.6</b>	<b>Quantity of POPs/Mercury containing materials and products directly avoided</b>					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	PIF stage	Endorsement
<b>Core Indicator 10</b>	<b>Reduction, avoidance of emissions of POPs to air from point and non-point sources</b>					<b>(grams of toxic equivalent gTEQ)</b>
<b>Indicator 10.1</b>	<b>Number of countries with legislation and policy implemented to control emissions of POPs to air</b>					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Indicator 10.2</b>	<b>Number of emission control technologies/practices implemented</b>					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Core Indicator 11</b>	<b>Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment</b>					<b>(Number)</b>
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	2,130	32,900		
		Male	4,970	32,900		
		Total	7,100	65,800		

## Annex 13: GEF 7 Taxonomy

Level 1	Level 2	Level 3	Level 4
<input checked="" type="checkbox"/> Influencing models			
	<input type="checkbox"/> Transform policy and regulatory environments		
	<input checked="" type="checkbox"/> Strengthen institutional capacity and decision-making		
	<input checked="" type="checkbox"/> Convene multi-stakeholder alliances		
	<input checked="" type="checkbox"/> Demonstrate innovative approaches		
	<input checked="" type="checkbox"/> Deploy innovative financial instruments		
<input checked="" type="checkbox"/> Stakeholders			
	<input type="checkbox"/> Indigenous Peoples		
	<input checked="" type="checkbox"/> Private Sector		
		<input type="checkbox"/> Capital providers	
		<input type="checkbox"/> Financial intermediaries and market facilitators	
		<input type="checkbox"/> Large corporations	
		<input checked="" type="checkbox"/> SMEs	
		<input checked="" type="checkbox"/> Individuals/Entrepreneurs	
		<input type="checkbox"/> Non-Grant Pilot	
		<input type="checkbox"/> Project Reflow	
	<input checked="" type="checkbox"/> Beneficiaries		
	<input checked="" type="checkbox"/> Local Communities		
	<input checked="" type="checkbox"/> Civil Society		
		<input checked="" type="checkbox"/> Community Based Organization	
		<input checked="" type="checkbox"/> Non-Governmental Organization	
		<input checked="" type="checkbox"/> Academia	
		<input checked="" type="checkbox"/> Trade Unions and Workers Unions	
	<input checked="" type="checkbox"/> Type of Engagement		
		<input checked="" type="checkbox"/> Information Dissemination	
		<input checked="" type="checkbox"/> Partnership	
		<input checked="" type="checkbox"/> Consultation	

		<input checked="" type="checkbox"/> Participation	
	<input checked="" type="checkbox"/> Communications		
		<input checked="" type="checkbox"/> Awareness Raising	
		<input checked="" type="checkbox"/> Education	
		<input checked="" type="checkbox"/> Public Campaigns	
		<input checked="" type="checkbox"/> Behavior Change	
<input checked="" type="checkbox"/> Capacity, Knowledge and Research			
	<input type="checkbox"/> Enabling Activities		
	<input checked="" type="checkbox"/> Capacity Development		
	<input checked="" type="checkbox"/> Knowledge Generation and Exchange		
	<input checked="" type="checkbox"/> Targeted Research		
	<input checked="" type="checkbox"/> Learning		
		<input checked="" type="checkbox"/> Theory of Change	
		<input checked="" type="checkbox"/> Adaptive Management	
		<input checked="" type="checkbox"/> Indicators to Measure Change	
	<input checked="" type="checkbox"/> Innovation		
	<input checked="" type="checkbox"/> Knowledge and Learning		
		<input checked="" type="checkbox"/> Knowledge Management	
		<input checked="" type="checkbox"/> Innovation	
		<input checked="" type="checkbox"/> Capacity Development	
		<input checked="" type="checkbox"/> Learning	
	<input checked="" type="checkbox"/> Stakeholder Engagement Plan		
<input checked="" type="checkbox"/> Gender Equality			
	<input checked="" type="checkbox"/> Gender Mainstreaming		
		<input checked="" type="checkbox"/> Beneficiaries	
		<input checked="" type="checkbox"/> Women groups	
		<input checked="" type="checkbox"/> Sex-disaggregated indicators	
		<input checked="" type="checkbox"/> Gender-sensitive indicators	
	<input checked="" type="checkbox"/> Gender results areas		
		<input type="checkbox"/> Access and control over natural resources	
		<input checked="" type="checkbox"/> Participation and leadership	
		<input checked="" type="checkbox"/> Access to benefits and services	

		<input checked="" type="checkbox"/> Capacity development	
		<input checked="" type="checkbox"/> Awareness raising	
		<input checked="" type="checkbox"/> Knowledge generation	
<input checked="" type="checkbox"/> Focal Areas/Theme			
	<input checked="" type="checkbox"/> Biodiversity		
		<input checked="" type="checkbox"/> Protected Areas and Landscapes	
			<input checked="" type="checkbox"/> Terrestrial Protected Areas
			<input type="checkbox"/> Coastal and Marine Protected Areas
			<input checked="" type="checkbox"/> Productive Landscapes
			<input type="checkbox"/> Productive Seascapes
			<input checked="" type="checkbox"/> Community Based Natural Resource Management
		<input checked="" type="checkbox"/> Mainstreaming	
			<input type="checkbox"/> Extractive Industries (oil, gas, mining)
			<input checked="" type="checkbox"/> Forestry (Including HCVF and REDD+)
			<input checked="" type="checkbox"/> Tourism
			<input checked="" type="checkbox"/> Agriculture & agrobiodiversity
			<input type="checkbox"/> Fisheries
			<input type="checkbox"/> Infrastructure
			<input type="checkbox"/> Certification (National Standards)
			<input type="checkbox"/> Certification (International Standards)
		<input checked="" type="checkbox"/> Species	
			<input type="checkbox"/> Illegal Wildlife Trade
			<input checked="" type="checkbox"/> Threatened Species
			<input type="checkbox"/> Wildlife for Sustainable Development
			<input type="checkbox"/> Crop Wild Relatives
			<input type="checkbox"/> Plant Genetic Resources
			<input type="checkbox"/> Animal Genetic Resources
			<input type="checkbox"/> Livestock Wild Relatives
			<input type="checkbox"/> Invasive Alien Species (IAS)
		<input checked="" type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangroves
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Sea Grasses
			<input checked="" type="checkbox"/> Wetlands
			<input type="checkbox"/> Rivers

			<input checked="" type="checkbox"/> Lakes
			<input type="checkbox"/> Tropical Rain Forests
			<input type="checkbox"/> Tropical Dry Forests
			<input checked="" type="checkbox"/> Temperate Forests
			<input checked="" type="checkbox"/> Grasslands
			<input type="checkbox"/> Paramo
			<input type="checkbox"/> Desert
		<input type="checkbox"/> Financial and Accounting	
			<input type="checkbox"/> Payment for Ecosystem Services
			<input type="checkbox"/> Natural Capital Assessment and Accounting
			<input type="checkbox"/> Conservation Trust Funds
			<input type="checkbox"/> Conservation Finance
		<input type="checkbox"/> Supplementary Protocol to the CBD	
			<input type="checkbox"/> Biosafety
			<input type="checkbox"/> Access to Genetic Resources Benefit Sharing
	<input type="checkbox"/> Forests		
		<input type="checkbox"/> Forest and Landscape Restoration	
			<input type="checkbox"/> REDD/REDD+
		<input type="checkbox"/> Forest	
			<input type="checkbox"/> Amazon
			<input type="checkbox"/> Congo
			<input type="checkbox"/> Drylands
	<input checked="" type="checkbox"/> Land Degradation		
		<input checked="" type="checkbox"/> Sustainable Land Management	
			<input checked="" type="checkbox"/> Restoration and Rehabilitation of Degraded Lands
			<input checked="" type="checkbox"/> Ecosystem Approach
			<input checked="" type="checkbox"/> Integrated and Cross-sectoral approach
			<input checked="" type="checkbox"/> Community-Based NRM
			<input checked="" type="checkbox"/> Sustainable Livelihoods
			<input checked="" type="checkbox"/> Income Generating Activities
			<input checked="" type="checkbox"/> Sustainable Agriculture
			<input checked="" type="checkbox"/> Sustainable Pasture Management

			<input checked="" type="checkbox"/> Sustainable Forest/Woodland Management
			<input checked="" type="checkbox"/> Improved Soil and Water Management Techniques
			<input checked="" type="checkbox"/> Sustainable Fire Management
			<input checked="" type="checkbox"/> Drought Mitigation/Early Warning
		<input checked="" type="checkbox"/> Land Degradation Neutrality	
			<input checked="" type="checkbox"/> Land Productivity
			<input checked="" type="checkbox"/> Land Cover and Land cover change
			<input checked="" type="checkbox"/> Carbon stocks above or below ground
		<input type="checkbox"/> Food Security	
	<input checked="" type="checkbox"/> Climate Change		
		<input checked="" type="checkbox"/> Climate Change Adaptation	
			<input type="checkbox"/> Climate Finance
			<input type="checkbox"/> Least Developed Countries
			<input type="checkbox"/> Small Island Developing States
			<input type="checkbox"/> Disaster Risk Management
			<input type="checkbox"/> Sea-level rise
			<input checked="" type="checkbox"/> Climate Resilience
			<input type="checkbox"/> Climate information
			<input type="checkbox"/> Ecosystem-based Adaptation
			<input type="checkbox"/> Adaptation Tech Transfer
			<input type="checkbox"/> National Adaptation Programme of Action
			<input type="checkbox"/> National Adaptation Plan
			<input type="checkbox"/> Mainstreaming Adaptation
			<input type="checkbox"/> Private Sector
			<input type="checkbox"/> Innovation
			<input type="checkbox"/> Complementarity
			<input type="checkbox"/> Community-based Adaptation
			<input checked="" type="checkbox"/> Livelihoods
		<input checked="" type="checkbox"/> Climate Change Mitigation	
			<input checked="" type="checkbox"/> Agriculture, Forestry, and other Land Use
			<input type="checkbox"/> Energy Efficiency
			<input type="checkbox"/> Sustainable Urban Systems and Transport
			<input type="checkbox"/> Technology Transfer

			<input type="checkbox"/> Renewable Energy
			<input type="checkbox"/> Financing
			<input type="checkbox"/> Enabling Activities
		<input type="checkbox"/> <b>Technology Transfer</b>	
			<input type="checkbox"/> Poznan Strategic Programme on Technology Transfer
			<input type="checkbox"/> Climate Technology Centre & Network (CTCN)
			<input type="checkbox"/> Endogenous technology
			<input type="checkbox"/> Technology Needs Assessment
			<input type="checkbox"/> Adaptation Tech Transfer
		<input type="checkbox"/> <b>United Nations Framework on Climate Change</b>	
			<input type="checkbox"/> Nationally Determined Contribution
<b>Rio Marker Adaptation: 1</b>			
<b>Rio Marker Mitigation: 1</b>			

## Annex 14: GEF METT

(Please see separate document)



## Annex 15: EX ACT GHG Calculations

(Please see separate document)

## Annex 16: Target Project Landscape

(the full description of the socio-economic context of the regions is presented under Annex 21)

The project area includes two regions (marzes) Gegharkunik and Vayots Dzor, encompassing the Lake Sevan watershed (including area of water transfer- Fig 1 below) and surrounding landscape (Fig.2).

**Fig 1:** Watershed area of Lake Sevan (including water transfer area)



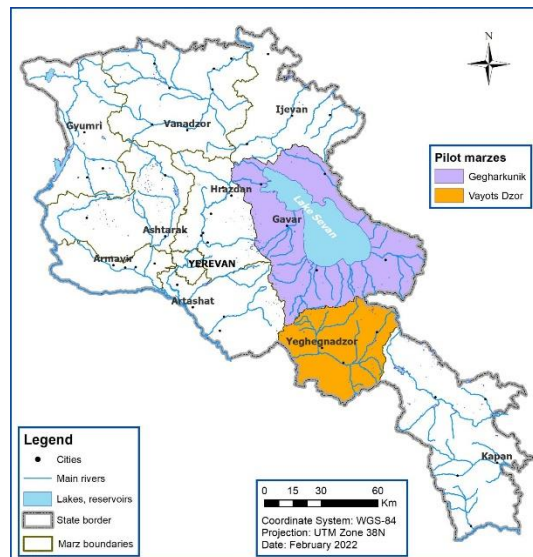
The map under Fig.1 shows the 22 km long Vorotan-Arpa tunnel which brings additional water from Spandaryan Reservoir to Arpa and from there to Lake Sevan. According to the *Law on Lake Sevan*, the catchment basins of Arpa and Vorotan rivers are also considered part of Lake Sevan watershed areas, as the water reaches Lake Sevan through the Arpa-Sevan tunnel<sup>58</sup>.

**Table 1** below includes a summary of the general information of the two targeted regions Gegharkunik and Vayots Dzor (official data ArmStat):

Indicator:	Gegharkunik	Vayots Dzor region
Occupied area, sq.m. km:	5352	2310
Specific weight of the territory of the region in the territory of RA, %	18	7.8
Number of communities 2022 as of the beginning of the year	6	5
cities	5	3
Villages:	93	52
The de jure population, 01.01.2021 a thousand people	227.3	48.1
including:		
Urban (thousand people)	66.2	16.8
Rural (thousand people)	161.1	31.3
Specific weight of urban population, %	29.1	34.9
Specific weight of rural population, %	70.9	65.1
Population density, people / sq	42.5	20.8
Agricultural lands, ha	345,260.0	189,556.8
including arable lands, yes	81,453.6	15,787.7

<sup>58</sup> Sevan Basin Management Plan (EU Project EUWI+)

**Fig. 2.** Targeted regions (marzes)



**Background on the Merger (enlarged/united) communities, part of the local amalgamation process**

**Background:** In 2011, the Government of the Republic of Armenia, approved by a Protocol Decree № 44, the concept of consolidation / amalgamation of close located communities /villages and formation of inter-community unions. Accordingly, the rural-urban settlements with a population of less than a thousand should be merged into one administrative-territorial unit. The initiators of the administrative reform program justified the need for the bill by showing that the existing administrative division was a serious obstacle to strengthening the capacity of communities and empowering the local self-government (LSG) system. The argument was that the system of LSG in Armenia was not ready for further deepening of decentralization, which primarily should imply the provision of additional authority to LSG bodies, in most communities considered not strong enough for the provision and management of: (i) quality service; (ii) finances and budget; (iii) natural and human resources; (iv) infrastructure

The amalgamation of communities did not happen as a onetime process, but the merging was processed through several rounds of amendments of the Law “On Administrative-Territorial Division of the Republic of Armenia” (adopted 7/11/95).

The recent amendment was in 24/09/2021, when **Vardenis, Martuni, Jermuk and Vayk** merger communities were formed. **Shoghakat and Yeghegis** mergers were formed per the 09.06.2017 amendment.

<https://www.arlis.am/documentview.aspx?docid=59732> These listed merger communities are selected as the project sites.

Rural settlements in Armenia are structured as compact villages with populations varying from around 300 to 6-7,000, though more often below 3,000 people. Out of 915 communities / settlements 442 or 48% have a population of less than 1,000, in the preceding non-merged status bringing to high degree of fragmentation of the local self-government system, also to the fragmentation of resources.

The Armenian system of local self-government is classified as mayor-council type, with a strong mayor authority. The Council of Elders is the representative body, and the head-Mayor of the community is the executive body. Each settlement/village had own local governing body – the elective Mayor of municipality and the Council of Elders to make decisions on behalf of the community so acting as a legal entity, to own and manage community property and resources, to plan and implement programmes for the village, being reportable to marzpetarans – the regional governing body. The need for amalgamation of smaller villages in one merger community as an administrative union was justified by the reasoning that the taxes paid by the residents of small communities are not enough to provide quality public services, such as road construction, renovation of kindergartens and cultural centers, garbage collection, etc. The scale of uncultivated land (more than a quarter of arable land) and the spread of small plots of land slowed down the development of agriculture and hindered the planning and sustainable use of lands, also limited investments in the sector of agriculture.

**Gegharkunik region** is the largest region in Armenia, occupying an area of 5349 km<sup>2</sup> (including the mirror area of Lake Sevan, which is 1270 km<sup>2</sup>). It is located in the eastern part of the country, at an altitude of 1900-3500 m above sea level. The region borders the regions of Tavush, Lori (north), Kotayk, Ararat (west), Vayots Dzor (south), as well as the Republic of Azerbaijan (east). It occupies 18% of the territory of the Republic of Armenia, including the regions of Gavar, Chambarak, Martuni, Sevan, and Vardenis. It includes 5 urban settlements: Gavar, Chambarak, Martuni, Sevan, Vardenis and 93 rural settlements, with the union of which currently 6 enlarged communities have been formed by regions: Gavar, Chambarak, Shoghakat, Martuni, Sevan, Vardenis. The region is bordered by Geghama, Vardenis, Areguni, Sevan, and Pambak mountain ranges. According to the approved land balance 01.07.2020, in the administrative territory of the region, there are **81,453.6** hectares of arable land, **181,610.1** hectares of pastures, **35,657.3** hectares of natural grasslands, and **11,981** hectares of forest lands, where the forests are **11036.2** hectares. According to the data 2019, the region has a population of 28,300, 84% of which live in rural areas, where the poverty rate is higher than the national average. Due to a lack of job opportunities, migration is high, especially among young seasonal migrant workers. The majority of the population of the region is engaged in agricultural activities, in particular livestock (including beekeeping), crop production (arable land cultivation), and in some settlements where the climatic conditions are favorable, they are engaged in fruit production. Gegharkunik region is a leader in terms of agricultural development, particularly in terms of livestock and livestock products. The production of grain and potatoes is also well developed. The region is the main supplier of fish in the republic. Gegharkunik region is hosting Lake Sevan, the largest water basin in Armenia, which has high economic, environmental and cultural value (it is one of the highest freshwater lakes in the world, 1,900 m above sea level). In order to preserve the ecosystem of the lake in the coastal zone, "Sevan" National Park was established at an altitude of 1898-3597m (area: 147,456 ha), which includes the lake itself, and the surrounding 24,800 hectares of coastal land, including the Ramsar site. The region is rich in historical-architectural, ethnographic-archeological monuments, 5270 registered and registered monuments. Sanavank, Hayravank, Lchashen ancient sites, Noratus khachkars and others are famous. Fortresses of the Urartian period (cuneiform inscriptions, Artashesyan border stones, etc.) have been preserved in Lchashen, Gavar, Tsovak, Tsovinar areas.

#### **Selected enlarged (merger) communities in Gegharkunik region**

**Martuni community** is located in the south-western part of Gegharkunik region, in the south-eastern part of Sevan basin, between the southern mountains of Geghama mountain range and the northern mountains of Vardenis mountain range, at an average altitude of 1970 m above the sea level. Argitchi, Tsakqar, Martuni and other rivers flow through the area. The community center is the town of Martuni, with a permanent population of 11,428 people (01.01.2021), the distance from the capital is 127 km, and 35 km from the regional center. The Selim and Yerevan-Sotk-Stepanakert interstate highways pass through the territory of the community. The enlarged community of Martuni was formed in December 5, 2021 and includes 19 settlements, one of which is urban. 16 out of 18 rural settlements are quite large villages with 1,000 to 10,000 population, Lernakert has about 300 inhabitants, and there is no permanent population in Nshkhark community. The united community of Martuni is the largest community of Gegharkunik region both in terms of population and occupied area. Martuni community council has 27 members.

**Vardenis community** is located in the south-eastern part of Gegharkunik region and the Sevan basin, between the Sevan, Eastern Sevan and Vardenis mountain ranges. Dominates the mountainous surface, has a height of 1900-3522 m (Mount Vardenis). The main landscapes are mountain-steppe and mountain-meadow, but the area includes the Masrik valley. Masrik, Pambak, Dara and other rivers flow through the area. There are gold, construction materials and peat mines. The community center is the town of Vardenis, the distance from the capital is 170 km, and 75 km from the regional center. The permanent population of Vardenis is 12363 people (01.01.2021). The enlarged community of Vardenis was formed in December 5, 2021 and includes 36 settlements, one of which is urban. Most of the rural settlements are small villages. 28 out of 35 rural settlements, have from 0 to 1,000 inhabitants, and 7 - 1000-4000 inhabitants. The community council has 27 members.

**Shogakat community** is located in the south-eastern part of the Aregun Mountains to the Artanish Peninsula, northwest of Lake Sevan, at an altitude of 1930-2150 meters above sea level. Tandzut, Drakhtik, Jil and other rivers flow through the area. Shoghakat united community was formed in November 5, 2017, as a result of the unification of six rural settlements: Aghberq, Shoghakat, Artanish, Drakhtik, Tsapatagh and Jil. The center of the community

is Shoghakat village, which is 110 km away from Yerevan and 85 km from the regional center Gavar. It is the smallest united community of Gegharkunik region, which was mainly inhabited in 1989-1992 by the Armenians deported from Azerbaijan. The rural settlements of Shoghakat enlarged community are mainly small villages with up to 1,000 inhabitants. The community council has 7 members.

**Vayots Dzor region** is located in the south-eastern part of the Republic of Armenia. It occupies an average place among the regions of the RA in terms of the size of the territory, and is the smallest region in terms of population. The region covers an area of 2308 square kilometers, borders with Gegharkunik region from the north, NKR from the northeast, Syunik from the southeast, the Republic of Nakhichevan (Azerbaijan) from the south, and Ararat region from the west. It is a hollow surrounded by mountains on all sides with a complex, highly fragmented surface. The altitude varies from 850 m (Areni) to 3522 m (Mount Vardenis). According to the approved land balance 01. 07. 2020, in the administrative territory of the region, there are **15787.7** hectares of arable land, **92204.8** hectares of pastures, **5058.1** hectares of natural grasslands and **13687.6** hectares of forest lands, where the actual forested areas are **10155.9** hectares. According to the data of 2021, the population of the region is 59871 people, of which about 67% are villagers. Previously, the region had 3 urban and 44 rural communities, with the unification of which 5 enlarged communities have been formed: Areni, Yeghegnadzor, Yeghegis, Vayk and Jermuk. In the region, the main occupation of the population is agriculture, where people are mainly focused on livestock, horticulture, and growing vegetables. This region is characterized by a variety of landscapes, relief zonation and fragmentation, which is the reason for the diversity of flora and fauna. There are 3 sub-regions in the administrative territory of the region: Arpa concave, Vayk folded mountain range (stretches in the south), Vardenis volcanic plateau (stretches to the north). The region is characterized by large contrasts of natural conditions, due to the large difference in surface heights, which is more than 2500 m. Four sanctuaries have been established in the administrative territory of the region: Yeghegnadzor, Herher Open Woodland, Jermuk Forest and Jermuk Hydrological. The region is rich in nature, as well as in historical-cultural, ethnographic-archeological monuments, numerous natural-historical complexes-geographical monuments..

#### **Selected enlarged (merger) communities in Vayots Dzor region**

**Vayk community** is occupied by the upper basin of Arpa river, in the north-west is Texar, in the west - Vayotssar extinct volcano, in the east - Zangezur, in the south - Vayk mountain ranges. The surface is mainly mountainous, with a great variety of landscapes. Vayk united community is the united community with the largest area of Vayots Dzor region, which occupies more than 41% of the region. The Yerevan-Meghri interstate road passes through the area. There are minerals, building stone - granite, travertine, polymetallic mines, etc. in the community. The community center is the town of Vayk, the distance from the capital is 140 km, and from the regional center 18 km. The permanent population of Vayk is 5508 people (01.01.2021). Vayk enlarged community was formed in December 5, 2021 and includes 20 settlements, one of which is urban. Most of the rural settlements are small villages. 18 out of 19 rural settlements have from 0 to 1,000 inhabitants, and Zaritap settlement has 1379 inhabitants. The community council has 15 members.

**Jermuk community** is located in the eastern part of Vayots Dzor region, borders with Azerbaijan from the east, and Vayk united community from all other sides. Jermuk community is located in the upper reaches of the Arpa River and is divided into two parts by the beautiful gorge of the Arpa River. The relief of the area is mostly mountainous, forested and is located at an altitude of 1750-3000 m above the sea level. The community area is very rich in water resources, such as hydrocarbonate mineral water. The community center is the town of Jermuk, which is located at an altitude of 2080 m above sea level and has a population of 4070 (01.01.2021). The distance from the regional center is 48 km, and from Yerevan to 173 km. Jermuk united community was formed in November 5, 2017, as a result of unification of five settlements: Jermuk, Kechut, Gndevaz, Herher and Karmrashen. On December 5, 2021, Herher and Karmrashen settlements were removed from the community, which joined Vayk community. Currently, the city of Jermuk, the villages of Kechut and Gndevaz are part of the enlarged community of Jermuk. Rural communities are not large, the population is up to 1000 people. Jermuk community council has 15 members.

**Yeghegis community** is located in the area of the tributaries of Arpa river in Yeghegis and Aghnjadzor river valleys, which are mainly gorges and have a mountainous section. Yeghegis river starts from the southern slopes of Vardenis mountain, at an altitude of 3200 m. The average altitude of Yeghegis community is 1650-1690 m above sea level. There are minerals in the community: granite, travertine, basalt, etc. The rivers of the community are quite fast flowing and have a high hydropower potential. 17 small hydroelectric power stations have been built on

the Yeghegis River. Yeghegis united community was formed in November 5, 2017, as a result of the unification of 16 rural settlements. Only 2 out of 16 settlements in the united community, have a population of 1,000 to 2,000 people, 11 of the other communities have a population of 100 to 1,000 people, Sevazhayr has only 24 inhabitants, and 3 settlements have no permanent population. The center of the community is Shatin settlement, which is located at an altitude of 1270 m above sea level and has 1792 permanent residents (01.01.2021). The distance from the regional center is 13.5 km, and from Yerevan 132 km. Yeghegis community council has 11 members.

**The process of selecting the communities and project demonstration areas:** During the PPG, the project site selection was conducted with the involvement of a multi-disciplinary team including experts on pastures/grasslands, LDN, forest, biodiversity and PAs/KBA/IBAs, hydrologist, economist, GIS, gender, eco-tourism and behavior change, as well as specialists from WWF Armenia and the Ministry of Environment (GEF ODP; UNCCD, UNCBD, UNFCCC focal points). The views of representatives of other line ministries holding the agriculture and land governance portfolios was sought and integrated into discussions (the Ministry of Economy and the Ministry of Territorial Administration and Infrastructure respectively). Several sessions were conducted for the sites selection. The initial preparatory stage included getting the GIS structured data sets from the governmental and non-governmental official sources and development of an integral database for generation of shapefiles. GIS mapping and analysis has produced different profile maps (LDN indicator mapping results representing land degradation trends, KBA/IBA, irrigated lands, etc.) which were reviewed for each priority region (marz) observing the merger communities (i.e. new larger administrative structures formed as a result of the local amalgamation process), then the attributive data from database was cross-checked with statistics from official governmental regulatory sources (e.g. decrees) wherever necessary. The discussions led to the prioritization of 6 merger communities to be involved in the project activities. In the Gegharkunik marz 3 merger communities were proposed: Martuni, Vardenis and Shoghakat. In Vayots Dzor marz 3 other merger communities were proposed: Vayk, Jermuk and Yeghegis. All 6 selected merger communities are geographically bordering with each other.

**Criteria considered:** Several criteria were considered: GEF indicators; existence of KBA/IBA and proximity to it (KBAs/IBAs, PA, ecological corridors); LDN mapping results (trends in land degradation); selection of different land use types that are representatives for the proposed project activities and the project's landscape approach; the official results of the local community amalgamation (part of decentralization process), resulting in enlarged communities (i.e. merger/united communities).

**First step of the selection exercise:** Identification of KBAs/IBAs and other critically important biodiversity as biodiversity reference points (Biodiversity in the Like Sevan Basin using available data supported mapping of the critical biodiversity values (PAs/KBAs/IBAs): Sevan National Park (PA) and wildlife sanctuaries such as the Jermuk Forest Sanctuary and Jermuk Hydrological Sanctuary, the Herher Sparse Forest Sanctuary, the Gndasar KBA, and 3 IBAs; the important forest ecosystems in Gegharkunik and Vayots Dzor marzes; the previously sampled Palearctic grasslands; the South-Eastern Lesser Caucasus Eco-Corridor with support from WWF Armenia.

**Second step:** Other criteria were considered such as the mapping results of the LDN indicators, the presence of pastures/grasslands, forests, trends of land degradation, irrigated lands, and water resources. All these land use types under different degrees of land degradation are represented in the selected communities.

The advantage of focusing on the merger communities is that the selected areas are including a more diverse landscape and therefore are better suited to the project's landscape approach. However, there is also a risk with the new merger communities since these are newly formed administrative units, which may be yet functionally still in a transition process with the distribution of local roles, responsibilities not yet definitive, as there may be a certain degree of resistance lingering among some local communities of the settlements involved in the merger process, local governors, and among the former authorities deprived of the former local power that they used to hold. Therefore, the project will validate and re-assess the selection of the 6 communities upon the project inception, checking the readiness to participate in the project activities, as we envisage that some (territorial/administrative) shifts within the selected merger community areas may still take place.

**The third step** of the site selection was the review and analysis of statistical data on target areas for a clearer understanding of the hectareage of the main land use types targeted by the (i.e. forest areas, arable land, pastureland, grasslands) in order to validate the GEF indicators. The table below reflects a summary data on prioritized areas contributing to the project core indicators.

**Table 2: Data on community land and water resources** (compiled from official sources by the PPG team)

#	Community /# of settlements	Pastures and Grasslands / ha	Irrigated Areas / ha	Forest cover / ha
1	Shoghakat / 6	14,813.1	0.0	1,477.3
2	Vardenis / 36	63,972.7	29,639.8	1,801.8
3	Martuni / 19	72,537.0	34,497.9	2,529.3
4	Yeghegis / 16	29,263.6	7,180.3	1,645.1
5	Vayk / 20	63,838.8	16,574.1	3,805.1
6	Jermuk / 3	13,396.0	1,079.1	2,596.4
	<b>TOTAL</b>	<b>257,821.3</b>	<b>88,971.2</b>	<b>13,855.0</b>
	<b>Of which demonstration areas</b>	<b>150,000</b>	<b>10,000</b>	<b>5,800+2200</b>

The fourth step was the identification of those clusters with the combination of natural resources use, that would be best matching the project’s landscape approach and the project objective, necessary to reach the projects core indicators, as well as to serve as “case studies”. Therefore, the best combination of different functionality land type GIS supported layers (availability of KBA/IBA, forest, land degradation trend, irrigated area, or water resource) was at the center of the visualization of the relevant clusters of different land use type.

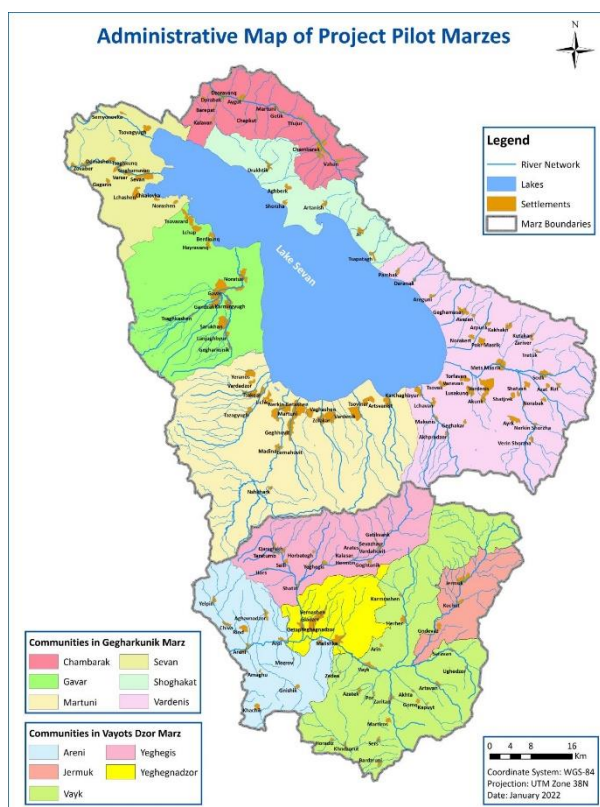
Within the selected merger communities this filtering step resulted in more accurate targeting of approximately 150,000 ha of pastures/grasslands demonstration areas, 10,000 ha of irrigated/farmland areas, 8,000 ha of forest areas (out of which 2,200 ha of degraded juniper forest ecosystem) supported by GIS analysis.

A critical point discussed was the security issue considering that some parts of the selected demonstration areas are located in the proximity of the Azerbaijan border, currently under the military control, where access is limited. As a measure of precaution some demonstration areas approx. 15-20% of the pastures/grassland areas) have been selected at a distance of a few km away from the border. These sites will be re-assessed at the project inception and permanently monitored, as per the UNDP SES procedure. This precaution is considered necessary since there have been occasional clashes reported between military forces at the border despite the Nagorno-Karabakh cease-fire agreement (October 2020).

The fifth step was the official approval of the proposed project by the Ministry of Environment (MoE) – the primary responsible body hosting the UNCCD, CBD, UNFCCC and GEF focal points, responsible for overall planning, management and overseeing the natural resources, for their comments and endorsement. MoE requested comments/feedback from other responsible relevant entities (line ministries) e.g. Ministry of Economy- currently responsible for the agriculture sector and the Ministry of Territorial Administration and Infrastructure for land use planning. More detailed information, and demonstration maps reflected in this protocol were used in different meetings, during the stakeholders engagement process, receiving positive feedback from key stakeholder on selected merger communities and specific targeted demonstration areas and settlements. In conclusion, the following enlarged/merger communities are proposed to support demonstration activities under the UNDP-GEF full-size project: in Gegharkunik marz: **Martuni, Vardenis, Shoghakat**, and In Vayots Dzor marz: **Vayk, Jermuk, Yeghegis**.



**Fig. 3. Prioritized communities**



All of the six target communities share 100 settlements among themselves, of which 4 are urban and 96 are rural. Gegharkunik region is a predominantly agrarian; the agriculture of the region is essential for the country's agri-food system. About 15-20% of the whole grain produced in the republic is produced in the region - more than 40.0% of potatoes. The leading directions of agriculture are cattle-breeding, beekeeping, fodder-grain crops-potato-growing, and to a very small extent, fruit-growing. The main direction of cattle breeding is cattle breeding - production of milk and meat products. About 68% of jobs in the region are provided by agriculture. In Vayots Dzor, agriculture has also the largest share within the total output of economy. The farms are mainly specialized in animal husbandry, in particular cattle breeding, and the primary directions in crop production are fruit growing and viticulture. The agricultural sector provides a significant part of the region's jobs.

**Table 3.** Selected enlarged (merger) communities- socio-economic data

Region/ regional center	Merger communi- ties	Settlements	Urban	Administrative area, ha	Population 01.01.2021	Population Density People/sq. km
Gegharkunik, Gavar	Martuni	19 (1) <sup>59</sup>	1	118,045.95	88,751	75.18
	Vardenis	36 (2)	1	111,658.6	33,139	29.68
	Shoghakat	6	0	31,954.8	3,328	10.41
	Total	61(3)	2	261,659.4	125,218	47.86
Vayots Dzor, Yeghegnadzor	Vayk	20 (4)	1	95,016.76	11,166	11.75
	Jermuk	3	1	20,158.39	5,726	28.41
	Yeghegis	16 (4)	0	47,663.46	6,208	13.02
	Total	39 (8)	2	162,838.6	23,100	14.19
<b>TOTAL IN ALL TARGET COMMUNITIES</b>		<b>100 (11)</b>	<b>4</b>	<b>424,498.0</b>	<b>148,318</b>	<b>34.94</b>

<sup>59</sup> The brackets show the non-permanent populated or sparsely populated settlements of the communities



During the PPG phase a SWOT analysis of the targeted communities has been conducted, considering the natural resources and socio-economic conditions vis-à-vis the local development potential:

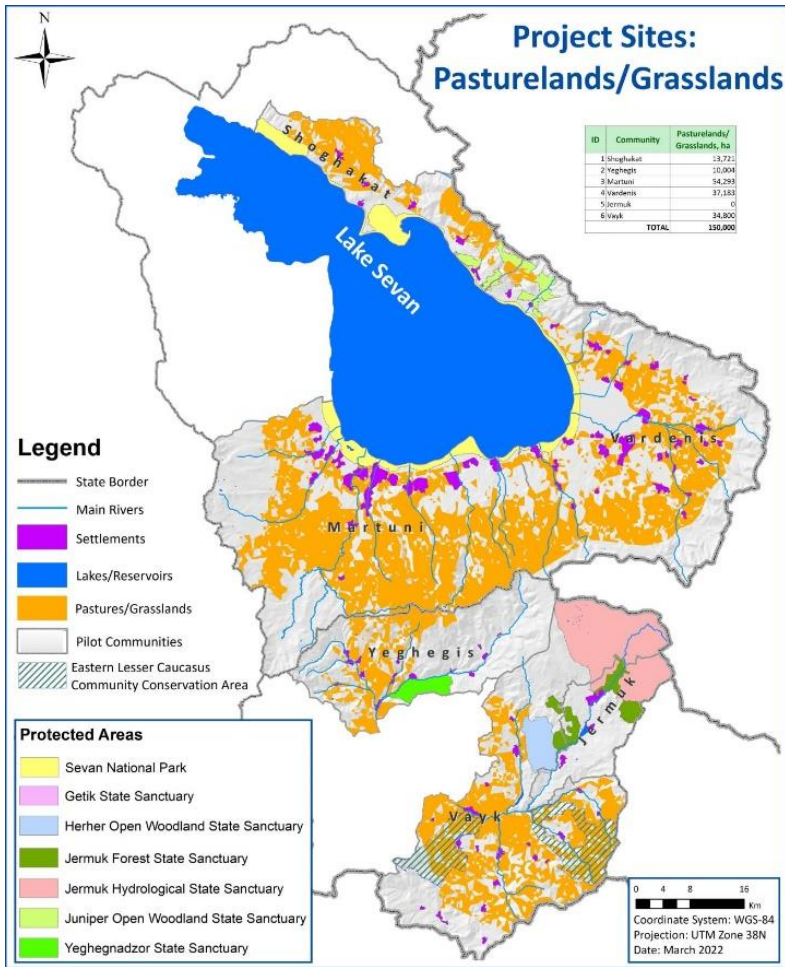
Strengths	Weaknesses
<ol style="list-style-type: none"> <li>1. Rich biodiversity, the presence of beautiful and diverse natural landscapes of natural ecosystems,</li> <li>2. The existence of a local population who love and is devoted to the region, and desires improved living standards,</li> <li>3. Existence of rather large land resources of agricultural significance,</li> <li>4. Availability of sufficient quality water resources for drinking and irrigation,</li> <li>2. Existence of general favorable climatic conditions for the development of sustainable and organic agriculture,</li> <li>3. Ecologically clean alpine meadows, availability of sufficient number of pastures and grasslands,</li> <li>4. Long-term culture of animal husbandry and large volumes of production of products of animal origin,</li> <li>5. Rich biodiversity and the existence of Lake Sevan National Park,</li> <li>6. Existence of natural and historical-architectural monuments, ancient settlements, Cyclopean castles and other cultural sites in the region,</li> <li>7. Availability of mineral resources,</li> <li>8. Existence of community areas and buildings in the settlements,</li> <li>9. Existence of basic resources and opportunities necessary for the development of different directions of tourism,</li> <li>10. Being close to the road of interstate significance,</li> <li>11. Existence of a relatively close consumer market for agricultural products,</li> <li>12. Favorable conditions for the development of renewable energy, high potential of solar radiation and great opportunities for biomass.</li> </ol>	<ol style="list-style-type: none"> <li>1. Relatively harsh climatic conditions and low level of adaptation to climate change,</li> <li>2. Low living standards in the communities and continuous outward migration of the population,</li> <li>3. Incorrect assessment of the situation by the community authorities, the existence of ineffective development programs and the lack of professional staffs and effective mechanisms for their implementation,</li> <li>4. Inefficient use of community resources and budgets,</li> <li>5. Low involvement of the population in community management processes, lack of motivation to participate in decision-making processes,</li> <li>6. Low level of employment and social security of the population,</li> <li>7. Lack of provision of housing with minimum communal conditions in public buildings and the difficulties of their operation in the colder part of the year,</li> <li>8. Poor condition of drinking water supply infrastructure, lack of centralized drainage systems and treatment plants,</li> <li>9. Poor condition of road and street networks and difficulties in accessing public transport,</li> <li>10. Lack of appropriate places and infrastructure to fully organize public and cultural life in settlements,</li> <li>11. Absence of waste collection or small and low level of organization,</li> <li>12. Low capacity and low level of knowledge for sustainable agriculture,</li> <li>13. Lack of irrigation network, intra-community and intra-residential irrigation infrastructure,</li> <li>14. Lack of agricultural machinery, wear of existing machinery,</li> <li>15. Lack of tourism infrastructure and weak capacity of the population in that direction.</li> </ol>
Opportunities	Threats
<ol style="list-style-type: none"> <li>1. Increase the capacity of communities and local CSOs to build new relationships and partnerships with the outside world,</li> <li>2. Consolidate the existing human, property and financial resources, correctly assess the current situation, develop and implement effective community development programs,</li> <li>3. Develop the capacity to develop effective community programs, involve independent experts and, as far as possible, increase funding for community development from government sources, international and local organizations,</li> <li>4. Introduce various mechanisms to encourage economic activity (especially tourism, agriculture, small and</li> </ol>	<ol style="list-style-type: none"> <li>1. Unsustainable reliance on remittances,</li> <li>2. Outmigration of residents from small settlements to the community center or other settlements,</li> <li>3. Providing more attention and resources to the development of community centers, at the expense of smaller settlements in the community,</li> <li>4. Distrust and skepticism of the community towards the activities of local governments, in the worst case, frustration and indifference,</li> <li>5. Various natural disasters, negative climatic effects and low levels of community resilience,</li> <li>6. Climate change due to rising temperatures, land degradation, depletion of water resources, increase in forest and field fires, increase in hail, frost, floods,</li> </ol>

<p>medium enterprises, etc.) in the community, increasing the community's own resources and financial investments,</p> <ol style="list-style-type: none"> <li>5. Contribute to the balanced development of the settlements in the community and increase the level of socio-economic competitiveness and attractiveness of the community,</li> <li>6. Contribute to increasing the involvement of young people and women in community councils and increasing management effectiveness,</li> <li>7. Promote the development of sustainable and organic/nature-positive agriculture in the region, the use of new technologies and the production of ecologically safe food,</li> <li>8. Contribute to the increase of the energy stability and security level of the population in the community, promoting the use of local energy and energy sources.</li> </ol>	<p>strong winds and low levels of community adaptation capacity,</p> <ol style="list-style-type: none"> <li>7. Increased negative impacts on nature and the environment as a result of the development of various sectors of the economy and low levels of community mitigation capacity,</li> <li>8. Delay in the introduction of modern technologies for the development of the agricultural sector, reduction of economic efficiency of the sector and mass alienation of agricultural lands,</li> <li>9. Unexpected external shocks posing threats on a number of levels, including hindering the development of local tourism such as the COVID-19 pandemic and recent armed conflicts in the region.</li> </ol>
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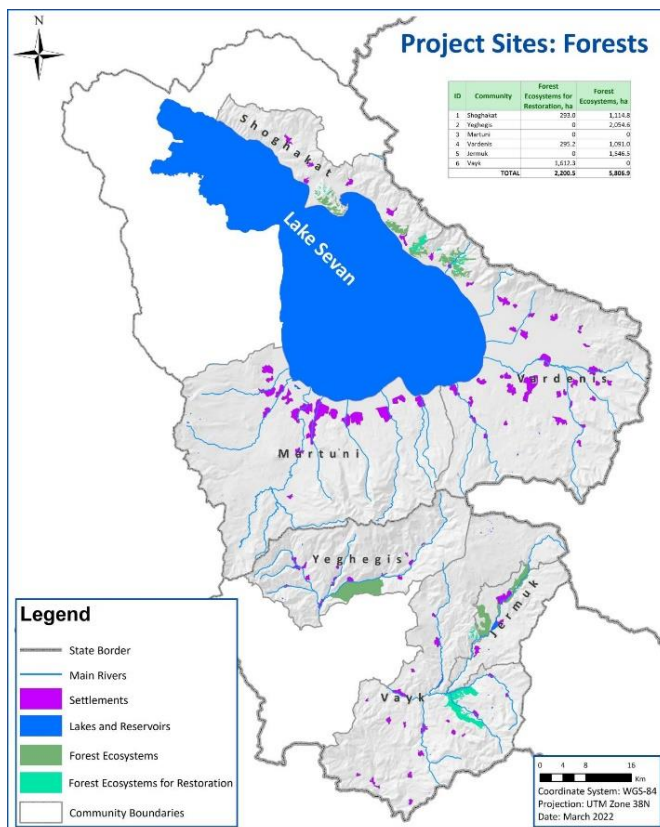
**Project demonstration areas:**

(PAs/KBAs/IBAs and other critical habitats targeted by the project are described under Annex 19)

**Fig. 4. Selected pastures and grasslands areas in targeted communities**



**Fig. 5. Selected forest areas in targeted communities**



**Pastures, grasslands and forest demonstration areas**

Out of a total of 216,848.9 ha of pasture and grasslands officially registered in the targeted regions (i.e. 194,609.45 ha of pastures and 22,239.45 ha of grasslands) the PPG experts have selected approximately **150,000 ha** of pastures and grasslands most of them situated outside protected areas for the demonstration activities under Output 3.1.1 (Fig 4) in five out of the six targeted communities (Shogakat, Yeghegis, Martuni, Vardenis, Vayk). The selection of these sites was based on LDN indicators mapping results (assessment of land degradation trends) and proximity to KBA/IBA and PAs within the Eastern Lesser Caucasus Ecological Corridor and area of potential community conservation. For example, the pastures near the village of Shorza have been selected for the development of the sustainable pasture management plans, in order to protect the high biodiversity of Ardanish Peninsula. The pastures around the rural settlements (approximately 6,929 ha) of Tsapatagh (Shogakat community), Pambak and Daranak (Vardenis community) in Ardanish peninsula are adjacent to the Juniper Open Woodland Sanctuary (Fig 9) where local communities are illegally grazing their livestock, affecting the sparse juniper and oak forest ecosystems- a critical habitat preferred by the Bezoar Goat. The sustainable pasture regimes will strengthen the wildlife migration corridor and support the expansion of the Bezoar Goat habitat from Vayots Dzor to Gegharkunik region (considering that historically populations of Bezoar Goat existed in Gegharkunik).

Similarly, for the activities under Output 3.1.3, out of the total forest areas officially registered in the targeted communities (3,649 ha in Gegharkunik and 9389.1 ha in Vayots Dzor)- the PPG experts have selected 8,000 ha of forest ecosystems. Out of which approximately **2,200 ha** of forest ecosystems was selected for demonstration of assisted natural regeneration; the sites- partially selected in Shogakat (145,8 ha) and Vardenis (442,4 ha) are represented by sparse juniper forest and oak forest (as per Fig 9 below) and those selected in Vayk community (1,612.3 ha) in Vayots Dzor region are mixed forests. These forest areas are under pressure coming either from illegal grazing of livestock (such as in and around the juniper sparse forests sanctuaries) or other form of livestock grazing nearby pastures and trampling and eating young trees and from slash and burn agriculture practices causing degradation of forests and adjacent pastures and forest fires (for example in Vayk community). The project

has selected these areas and will work together with the existent Pastures Users Associations and with the forest management authorities (Hayantar), supporting rotational grazing measures (including a ban on grazing around sanctuaries i.e. the juniper forest/oak forests) and incentivizing the farmers away from destructive behaviors such as slash and burn agriculture.

In addition, approximately **5,800 ha** of forest ecosystem areas have been selected for the development of sustainable forest management plans in Yeghegis (2,054.6 ha), Jermuk (1,546.5 ha), Vardenis (1,011.8 ha) and Shogakat (1,194 ha) communities, jointly with forest management authorities (Hayantar) and the local communities (Fig 5). The situation in these areas is critical especially in the forests adjacent to Artavan settlement of Vayk community, where in 2017 a forest fire caused significant damage to juniper sparse forests. Serious problems are affecting the forests near Vardahovit settlement of Yeghegis community, due to pests outbreaks in 2020, which caused enormous damage to the trees.

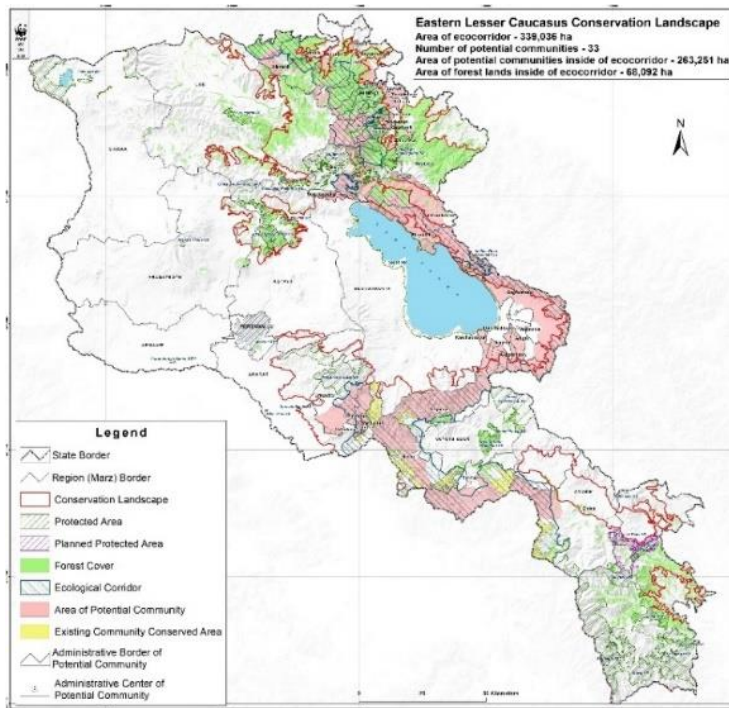
**Fig. 6. Burnt forests in Vayots Dzor region near Artavan and Saravan villages (photo courtesy of WWF Armenia)**



In addition to the destruction caused by forest fires, the irregular use of pastures adjacent to forest areas prevents the possibility of natural self-regeneration of the young trees at the forest edge. These forest ecosystem areas are located (totally or partially) within or in immediate proximity of the Eastern Lesser Caucasus Ecological Corridor potential community conservation areas and wildlife sanctuaries, KABs/IBAs.



**Fig. 7. KBAs and Priority Conservation Landscape (Courtesy of WWF Armenia)**



The selection was based on the assessment of degradation trend based on attributive data of the forest assessment such as completeness and bonitet. The presence of the light forest (in burned areas) was also taken into account during the selection process. Out of the 100 settlements shared among the 6 target communities, 26 settlements have participated in CARMAC II project which supported the set-up of local Pasture Users associations. This GEF project will work with the existing Pasture Users Associations and build on CARMAC II results.

Approximately 8,500 ha of grasslands (out of the selected 150,000 ha) are Palearctic biodiversity-rich grassland areas, identified in least at 3 locations: Selim, Harmon and Shorzha, some of which have been sampled previously by the by a group of researchers within the framework of the 13<sup>th</sup> Workshop and field observation of the *Eurasian Dry Grassland Group (EDGG)* in 2020. The richest grassland biodiversity has been found in Artanish peninsula (near lake Sevan):

**Fig. 8. Sampling of semi-dry biodiversity-rich grasslands near Lake Sevan<sup>60</sup>**



*Brief assessment of pastures, grassland and forest ecosystems the selected areas (excerpt from full PPG Report on Pastures and Forests resources):*

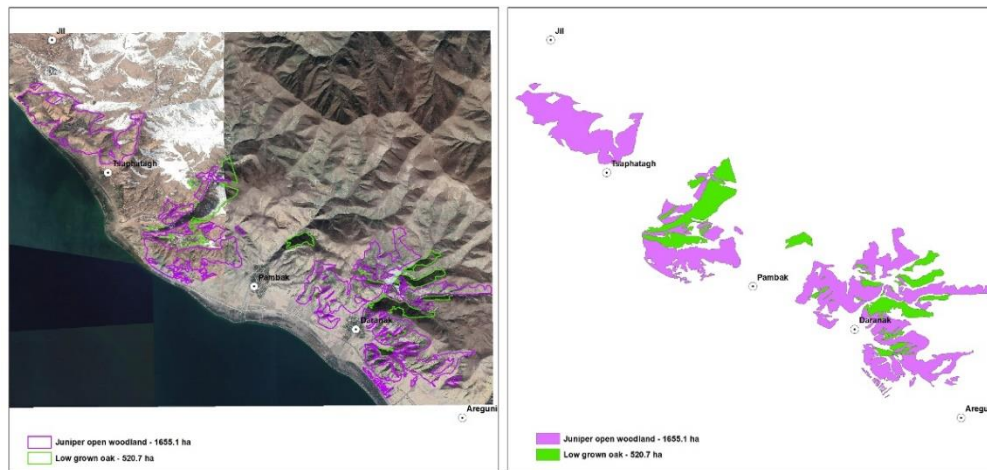
<sup>60</sup><https://www.researchgate.net/publication/344142055> High diversity in Armenian grasslands EDGG Field Workshop provides standardized data for the first time

**In the prioritized enlarged (merger) communities of Gegharkunik region:** Vardenis, Martuni, and Shoghakat, the total land fund (total administrative area) of about 61 rural settlements is 262,525.5 ha, of which 124,948.3 ha are pastures, 18,151.2 ha are natural grasslands, 3,649.2ha hectares are forest areas. The total administrative area of the three target communities is about 49.5% of the total area of the Gegharkunik region. The natural ecosystems belong primarily to the steppe (mountain-steppe) ecosystem, in the subalpine and alpine highland landscape zones, where landscape comprises diverse vegetation of steppes, meadow-steppes, alpine meadows, and subalpine meadows (alpine carpets) rich in regional diversity, where, as a rule, the dominant positions are mainly provided by the representatives of the *Poaceae* and *Fabaceae* families. The ecological status of the Palearctic Highland Grasslands areas is declining due to irregular harvesting which prevents securing seed germination and self-recovery, that ultimately is leading to the decline of grasslands biodiversity and a gradual transition of the vegetation dominated by *Poaceae* to predominantly *Fabaceae* family, and in some areas the prevalence of weed species were prevalent. Due to the lack of regular maintenance bush encroachment has been observed which further decreases the presence of palatable species.

In Gegharkunik region, WWF Armenia has registered and mapped in the Common Community Area: 51,127.3 ha KBA, 21,216.2 ha IBA and 15,935.2 ha protected area, as well as 55,285.2 Eco-corridor areas (Eastern Lesser Caucasus Conservation Landscape) located inside and outside of Sevan National Park (PA). These areas are vital for the conservation and sustainable development of biodiversity in Sevan Basin landscape. The current livestock feed in the targeted communities is mainly conditioned by the existing pastures and grasslands within the administrative areas of the communities (communal areas) which provide about 75-80% of the feed needed by the existing livestock per year. Due to the difficult access to distant pastures at present (distance, technical-economic-social problems, dilapidated condition or lack of infrastructure necessary for sustainable long-distance behavior), the use of pastures in this area is carried out in part, mainly by large farms, which have sufficient resources and opportunities to organize long-term sustainable behavior. As a result, the majority of the livestock of the target communities graze in the pastures of the rural areas with irregular grazing behavior during the whole grazing period, where the rather high density of livestock makes overgrazing and consequently heavy trampling of pastures inevitable. Overgrazing has led to changes in the composition of species, reducing the number of populations of valuable forage plant species and the spread of weeds and poisonous species (such as *Ranunculus sp.*, *Alchagi pseudoalchagi*, *Euphorbia sp.*, *Astragalus sp.* etc.). In addition, the over-harvesting of certain species of edible and medicinal herbs from natural pastures for human consumption has brought some plant species to the brink of extinction. This is due to the high degree of degradation of the communal. According to various estimates, about 50% of the pastures and grasslands in the three target communities are degraded to varying degrees, of which 13% (mainly pastures) are highly degraded. The degradation of natural grasses is also due to improper management. Grass harvesting carried out at the same stages of herb development and maturation for years, without grass circulation and definitions of rest (to ensure self-recovery), it has led to the extinction of many valuable species that reproduce by seeds, to the expulsion of communities, due to which the quality of vegetation has changed, the species composition has become poorer, the latter has a negative impact on local biodiversity.

The total area of forests in the three communities selected in the Lake Sevan basin is about 3,649.2 hectares. The main part of the forests is occupied by pine, poplar, birch, oak, juniper, willow and ash trees, of which the main part of the forest layers (coastal parts) are of artificial origin. As a result of unsystematic/unsustainable felling, the completeness of forests in the national park has decreased significantly. The tendency to reduce the completeness is more pronounced in the pine, poplar, elm and oak trees, which are mostly exploited by the population. The current condition of the forested areas is rather bad, due to the low level of care and rehabilitation measures. The sparse juniper forest ecosystems of the Open Woodland Sanctuary located near the lake Sevan is threatened by illegal grazing of the adjacent pastures.

**Fig. 9. Juniper Open Woodland Sanctuary** (Courtesy WWF Armenia)



The anthropogenic pressure on forest areas is still significant, in particular the irregular use of pastures adjacent to forest areas in the suburbs (coastal areas) prevents the possibility of natural self-regeneration of the forest ecosystem. Outbreaks of various pests and diseases have been significant in recent years the current lack of integrated control against the former has led to the elimination of trees and shrubs in local areas. Forest ecosystems along the coastal area have been significantly affected by the increase in the level of the lake, which resulted in forced logging of large coastal sites, uprooting water-covered trees and shrubs in order to help maintain the lake ecosystem and reduce eutrophication.

**In the prioritized enlarged (merger) communities of Vayots Dzor region:** Yeghegis, Vayk and Jermuk (including about 37 rural and 2 urban settlements) the total land fund (according to the land balance approved by the Government of the Republic of Armenia on November 3, 2020) is 162,838.61 ha, where 69,661.2 hectares are pastures, 4088.37 hectares are natural grasslands, and 9,389.1 hectares are forest areas. The total administrative area of the three target communities is about 70.7% of the total area of Vayots Dzor region and mainly included in dry mountain-steppe, mountain-steppe, mountain-forest, subalpine and alpine high-mountainous landscape zones. In the dry steppes of the lower lowlands, phryganoid vegetation is predominant; in the highlands, the xerophyte and mesophyte species are predominant, with the predominance of *Poaceae*. In the mountainous landscapes of the higher altitudes, especially in the post-forest and subalpine landscapes, high-grass meadows with multi-component vegetation have been formed, Palaearctic grasslands with rich species and biodiversity. WWF Armenia has registered and mapped in Common Community Area about 84,693.4 ha KBA, 10,424.2 ha IBA and 26,275.2 hectares of protected areas, as well as 81,182.9 hectares of eco-corridor areas. These protected areas are included in the eco-corridors of the Eastern Lesser Caucasus, which is one of the main ecological corridors of the Caucasus Ecoregion (ECP, 2020, WWF), which includes broad leaf and coniferous forests, subalpine and alpine meadows and shrubs. In the rural areas of the target communities, the main areas are animal husbandry and crop production, and in some settlements, some are engaged in fruit growing.

The main direction in the field of animal husbandry is pasture livestock. Generally, in rural areas of communities there is very little field fodder cultivation. Irrigated arable land cultivation in rural areas of the lower arid communities is not justified. In the arid arable lands of the middle and highlands, very few cereals crops are grown, mainly barley, wheat. From a limited area of perennial grasses, Alfalfa (*Medicago sativa*) is grown mainly in irrigated arable lands, and Sainfoin (*Onobrychis viciifolia*) in arid areas. In the 3 target communities, as per the rest of the region, limited arable land cultivation (up to 25-27% of the total area) or unsystematic cultivation happens mainly due to arable land fragmentation, insufficient technical means, socio-economic problems of farmers in the communities (insufficient financial means for seeds, fertilizers, fuel, etc.). Due to these circumstances, the current livestock feed in the communities is mainly conditioned by the existing pastures and grasslands in the administrative areas of the communities (communal areas), which provide about 85% of the feed needed by the existing livestock per year.

Owing to the complex relief of the target communities and landscape zoning of pasture areas, in the rural communities there is mainly two-zone pasture behavior: temporary use of community pastures and the use of remote pastures. Due to the fact that the lower parts of some communities, such as Vayk and Yeghegis administrative areas, are mostly arid, covered with low-quality fodder vegetation, grazing in these areas is short-lived. At present, due to the difficult access to distant pastures (distance, technical-economic-social problems, dilapidated condition or lack of infrastructure necessary for sustainable long-distance behavior), the use of pastures in this area is carried out in part, mainly by large farms. In some rural areas, small and medium farms in the community have joined herds and are sent to remote pastures in the highlands for distant behavior. Small households generally are grazing their cattle around the settlements, exceeding the carrying capacities of the communal pastures, resulting in overgrazing and degradation of the pastureland. The species composition of the landscape vegetation was also significantly affected by the irregular collection for consumption, especially in Jermuk and Yeghegis communities, the collection of large quantities of edible plants, spices, herbs, and various tea plants from the grasslands, pastures, has also significantly reduced the distribution areas of many species and almost eliminated some of them. Climate change also has a significant impact on this process, as Vayots Dzor region is considered one of the most vulnerable parts of Armenia, where declining rainfall and rising temperatures make natural landscapes more vulnerable, contributing to the development of degradation and soil erosion. In general, the degree of degradation of the land resources in all the three target communities is quite high -up to 58% (LDN analysis). According to various estimates, pastures and natural grasslands are more degraded in the administrative areas of the three target communities e.g. about 9-10% of pastures (mainly rural areas) are highly degraded.

The total forest areas in the three targeted communities of Vayots Dzor is approximately 9389.1 hectares, mainly represented by juniper, oak, pear, birch, spruce, willow, hawthorn trees. The existing forest management plans show a low completeness in Vayk and Yeghegis communities and higher in Jermuk. The low average completeness is mainly due to unsystematic logging and forest fires.

#### **Selected Irrigated/arable areas**

The PPG experts have selected approximately **10,000 ha of arable/irrigated land** for demonstration activities under Output 3.1.2 (Fig.9 further below). The irrigated areas were selected within Martuni, and Vardenis communities, of Gegharkunik region, and Yeghegis community of Vayots Dzor region based on LDN mapping results and local conditions. The selection was difficult especially in Vayots Dzor where irrigated/arable land is scarce due to the existing topography.

**Table 4: Arable land in priority communities**

Marz	Ghegarkunik		Vayots Dzor
	Vardenis	Martuni	Yeghegis
Total land (ha)	115,008.22	114,153.34	47,663.46
Arable land (ha)	33,082.27	15,669.27	1,957.89
Irrigated Land (ha)	2,349.6	6,304.8	963.1
Annual cereal crops (ha)	8,250.0	3,025.0	528.6
Vegetables or other (ha)	3,500	2,460.0	85.0
Fruit tree (ha)	0	19.37	10.95
Pastures (ha)	48,423.85	59,937.67	24,853.95
Livestock:	Large cattle - 20,750 Small cattle-4,078	Large cattle- 26,969 Small cattle- 11,327	Large cattle- 4,097 Small cattle- 2,264
Beehives:	21,659	5,415	15, 431
Forest (ha)	1,899.1	282.49	2,465.29
Status of Degraded arable land (ha) (e.g. Degraded or moderately degraded; Salinization problem; etc )	6,780.5 <i>degraded</i>	2,507.0 <i>moderately degraded</i>	391.6 <i>moderately degraded</i>
Status of irrigation infrastructure: (Existing: yes/ no; Functional; collapsed; traditional / old; modern etc )	Existing: yes <i>traditional / old</i>	Existing: yes <i>traditional / old</i>	Existing: yes <i>traditional / old</i>



## **Gegharkunik**

**Vardenis community** is located in the region of Gegharkunik region of RA. The enlarged (merger) community was formed as a result of the amendment made to the RA Law on Administrative Territorial Division of the Republic of Armenia on September 24, 2021, 36 Vardenis region of Gegharkunik marz: Vardenis, Azat, Akhpradzor, Akunk, Ayrk, Avazan, Areguni, Arpunk, Geghamabak, Geghamasar, Geghakar, Daranak, Zariver, Lchavan, Lusakunk, Khachaghbyur, Tsovak, Kakhakn, Karchaghbyur, Kut, Kutakan, Makenis, Mets Masrik, Nerkin Shorzha, Norabak, Norakert, Shatjrek, Shatvan, Jaghatsadzor, Tavaghatsorv, Sot , From the union of Tretuk, Pambak, Pokr Masrik communities. 13917 inhabitants live in the community. The center of the community is Vardenis settlement.

Irrigated lands in Vardenis community make only 29,639.8 hectares, of which 6,000 hectares were selected for the project's activities under Output 3.1.2

The selected plots are compact and spread in the lower parts of the Masrik River basin, see Figure 9. The lands of 16,044.6 hectares of the community are degraded. There are degraded parts on the selected arable lands. Surface water resources are available in the community and Masrik groundwater basin. The main surface water resource is the Masrik River with its tributaries. The annual multi-year average flow of the Masrik River is 104.4 million. m<sup>3</sup>, and the usable reserves of the Masrik underground basin are about 51.4 million. m<sup>3</sup>: The irrigation infrastructure is represented by Masrik canal, the length is 31.5 km, water capacity maximum 2.0 m<sup>3</sup> / sec. The Masrik canal is used for agricultural purposes and serves the area selected as irrigated lands. Both the selected irrigated areas and the Masrik canal are under the service of Gegharkunik Water User Association. Due to the poor condition of the irrigation infrastructure, water losses in the network are currently up to 50%. The main canal is made of concrete and is in a poor condition, resulting to 50% water loss. And the canals feeding the irrigated lands are earthy, due to which the water losses are also large. Climate change shows that the temperature in the community has increased by 1.2-1.5°C during the last 60 years, there has been a slight increase in precipitation.

The results of **climate forecasts** show that the Masrik river basin forecasts a 3% increase in river flow by 2040, and an 11% increase by 2100. Livestock farming is predominant. Main crops are potato, wheat, barley. Perennial herbs such as alfalfa and carob are grown as fodder crops. The main drivers of the land degradation and water resources are the precarious socio-economic condition which is not conducive to investments in agriculture land fragmentation, lack of quality seeds, and difficult to access markets. Due to the lack of equipment there are limited irrigation opportunities, only 30-35% of arable land is currently cultivated. In the livestock sector, pasture livestock is mainly developed, particularly dairy cattle, and in some settlements sheep. The main issues affecting the development of agriculture in Vardenis community are: Poor condition or lack of irrigation technologies and weak presence of agricultural processing enterprises, leading to low incomes and land degradation / land degradation.

**Martuni community** is located in Gegharkunik marz of RA, as a result of the amendment made to the RA law "On administrative-territorial division of the Republic of Armenia" on September 24.2021.19 villagers of Martuni region of Gegharkunik marz of RA: Martuni, Astghadzor, Artsvanist, Geghovit, Yerosos, Zolakar, Lernakert, Lichk, Tsakkar, Tsovasar, Tsovinar, Dzoragyugh, Madina, Nerkin Getashen, Nshkhark, Vaghashen, Vardadzor, Vardenik and Verin Getashen communities. The total area of Martuni community is 114,153 hectares. There are 6,068.3 hectares of IBAs (IBA, AM005: Lake Sevan), in the community which is mainly distributed between the community and Sevan National Park areas, and Key biodiversity areas (KBA, 179: Gndasar) are located in the upper reaches of the Argitchi River Basin, part of the Gndasar Key Biodiversity Area, covering an area of 15,923 hectares. The specially protected area covers 4,643.5 hectares. In the territory of the community, the eco-corridors are small areas, 384.6 hectares, spread on the Vardenis mountain ranges in the peak and near-peak parts.

Irrigated lands in Martuni community make only 34,497.9 hectares, of which 3,520 hectares were selected for the activities under Output 3.1.2.

The selected lands are spread on the lower parts of Martuni, Zolakar and between Vardenik rivers (Fig.9). Approximately 15,311.1 hectares of arable land are degraded. Surface water resources in the community are low current rivers, and there is no groundwater basin. The main surface water resource is the Astghadzor river with its tributaries. The annual multi-year average flow of the Masrik River is 21.5 million m<sup>3</sup>. From Manas irrigation infrastructure (length 19.3 km) and Zolakar (length 4.4 km) canals are 5.3 km, maximum water capacity 0.4 m<sup>3</sup>/sec. The canals are used for agricultural purposes, they serve the area selected for irrigation water, they are under the service of Gegharkunik Water User Association. Due to the poor condition of the irrigation infrastructure, water losses in the network are currently up to 45%. The canal is made of concrete and they are in poor condition, that

is why water losses reach up to 40%. The canals that feed the irrigated lands are earthy, due to which the water losses are also large.

The **climate change scenario** analysis shows that the temperature in the community has increased by 1.3-1.5°C during the last 60 years, there has been a slight increase in precipitation. The results of climate forecasts show that 3% growth of river flow is forecasted in the territory of Martuni community by 2040, and 11% growth by 2100. Livestock farming, potato and cereal crops are predominant. Due to socio-economic and other land-related problems in community areas, only 28-30% of arable land is currently cultivated. In the field of animal husbandry they are mainly specialized in dairy cattle breeding, in some settlements they are also engaged in sheep breeding. The main issues affecting the development of agriculture in Martuni community are: Poor condition or lack of irrigation technologies and weak presence of agricultural processing enterprises, leading to low incomes and land degradation / land problems.

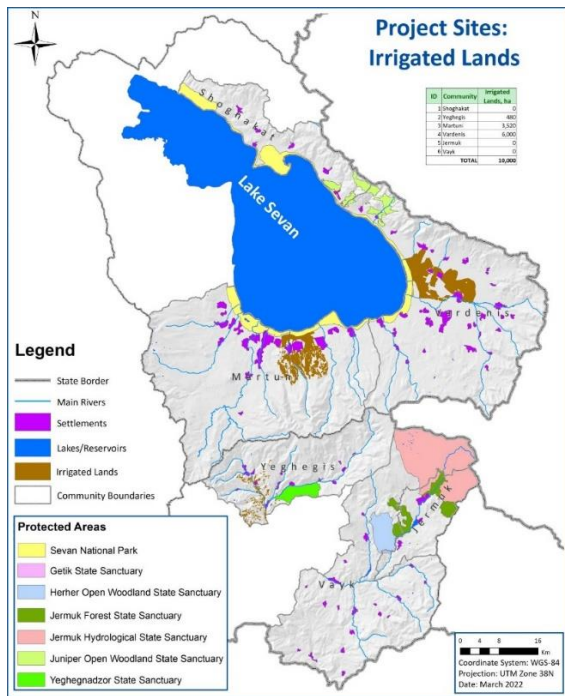
### **Vaypots Dzor**

**Yeghegis community** is located in Vayots Dzor marz of RA. The enlarged (merger) community was formed as a result of the amendment made to the RA Law on the Administrative-Territorial Division of the Republic of Armenia on June 9, 2017: Aghnjadzor, Artabyunk, Goghtanik, Yeghegis, Taratumb, Hermon, Horbategh, of Hors, Shatin, Sally, Vardahovit and Karaglukh rural communities from the union. There are 6431 inhabitants live in the community. The center of the community is Shatin settlement. The administrative territory of the community is 47663.46 hectares, of which 43,393.97 hectares are agricultural lands. The main occupation in the rural areas of the community is agriculture (cattle breeding and arable farming in some settlements they are partially engaged in gardening and fruit growing). Currently only 25-27% of arable lands are cultivated. Poor cultivation of arable lands is mainly conditioned by land fragmentation, lack of quality seeds, lack of equipment, limited irrigation opportunities, as well as social and economic problems in rural areas. The main issues affecting the development of Yeghegis community are: Poor condition or lack of irrigation technologies and weak presence of agricultural processing enterprises, leading to low incomes and land degradation / land problems. The total area of Yeghegis community is 48,198.3 hectares.

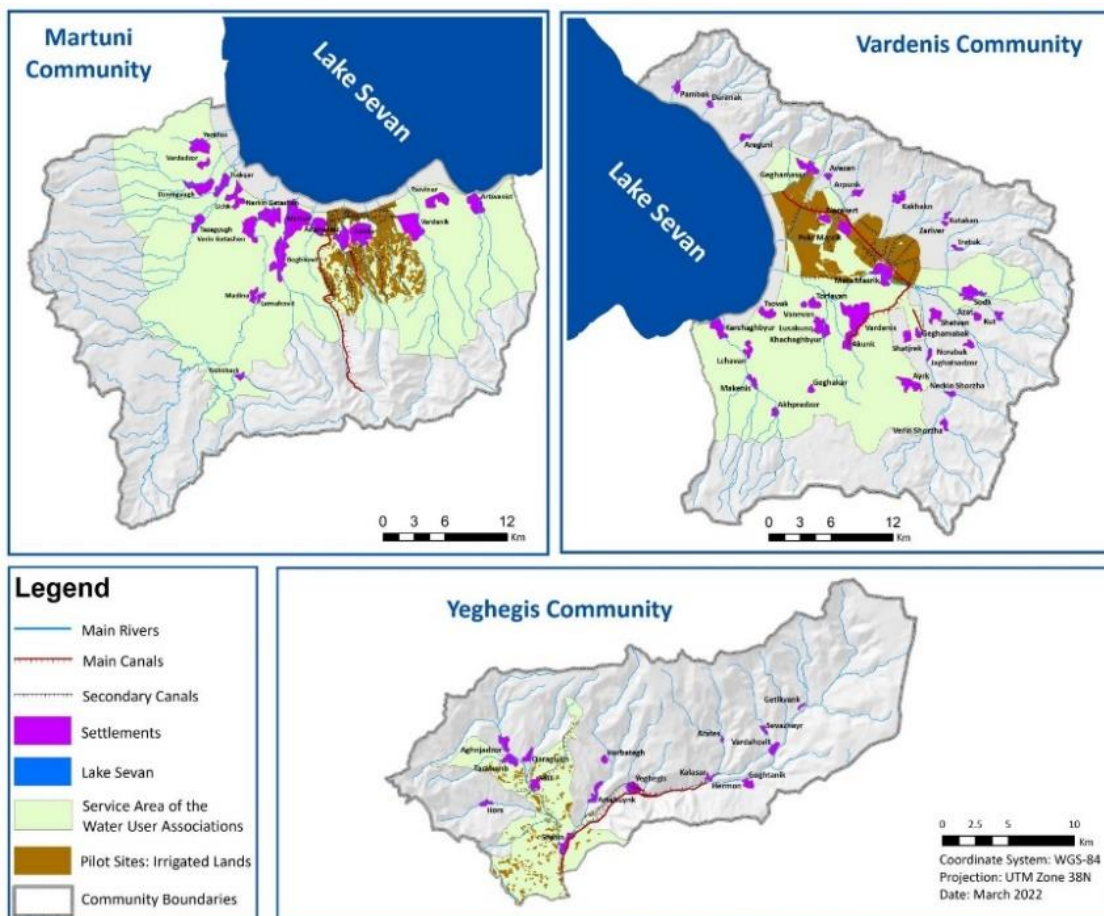
The KBA hectares in the community is 999.9 ha (IBA, AM013: Gndasar), located mainly in the western part of the community. The key biodiversity areas (KBA, 179: Gndasar and 180: Jermuk-Yeghegis) are located in the eastern and western parts of the community and cover an area of 30,814 hectares. The specially protected area in the community is only 2,042.6 hectares - Yeghegnadzor State Reserve. Eco-corridors are extended in a large area in the community. It is 40,299.4 hectares and covers almost the entire territory of the community. Irrigated lands in Yeghegis community make only 7,180.3 hectares. The lands of the community are scattered and appear as small plots of land (Figure 9). The main reason for the segregation of the lands is that the area is mountainous, the relief has substantive slopes.

In Yeghegis community, only 480 hectares of irrigated lands were selected, which are located in the service area of Yeghegnadzor Water User Association. Selected irrigated lands are located in the basin of the Yeghegis River, its tributary Sali (Fig.10). The lands of 2,622.1 hectares of the community are degraded. The surface water resources available in the community are the Yeghegis River. And the underground aquifer is missing. Yeghegis annual multi-year average flow is about 154.0 million m<sup>3</sup>. The Hermon-Elpin gravity pipeline with a length of 25.0 km passes through the irrigation infrastructure, the capacity is 1.4 m<sup>3</sup>/sec. The water pipe is used for agricultural purposes, it serves the area selected for irrigated lands, it is under the service of Yeghegnadzor Water User Union. The condition of the irrigation infrastructure is satisfactory: water losses in the network are up to 30%, and the canals feeding the irrigated lands are earthy. **Climate change** related scenario analysis shows that during the last 60 years in the community in the Yeghegis River basin the river flow has increased by 1.5-4.5%, mainly due to the presence of forests in these areas, with less evaporation. The results of climate forecasts show that the river flow in the Yeghegis community is expected to decrease by 17% by 2040, and by 2100 - by 30%.

**Fig. 10. Irrigated/arable land demonstration areas**



**Fig. 11. Irrigated land and main irrigation canal in the selected areas**



## Annex 17: Legal and Institutional framework

### ✓ Pastures and Forests Resources

Date	Name of law or regulations	Areas /law regulation applies to
2011	RA Governmental Decision N 1192-N	The Law sets monitoring methodology of industrially polluted soils.
2012	RA Mining Code	The Code provides a number of provisions relating to the protection of land relations and incorporates the concept of “re-cultivation” which assumes restoration measures aimed at the recovery of disturbed lands and bringing them into safe state to be viable for economic use and for conserving the environment envisaged by the design of extraction of minerals or geological exploration program.
2008	RA Law on Control Over Use and Protection of Lands	The Law defines the issues of effective use and protection of land, supervision of compliance with the requirements of land legislation, forms, supervisory authorities, rights and responsibilities of inspectors and inspectors, procedures for inspections. It oversees the protection and use of lands within the respective jurisdiction by the highest body of professional supervision established by the RA Law on Local Self-Government-State Authorized Body; the governors and community leaders.
2014	RA Law N 135-N on Food Safety	This law regulates food safety relationships and activities related to foodstuffs, food materials, food chains and trade and public catering, as well as provides for state guarantees for human health related with harmful substances and dangerous effects of foodstuffs and food materials. It regulates the basic principles and features of state control over food safety, veterinary and phytosanitary rights and obligations, duties of state controllers, as well as other relations related to state control.
2014	RA Law N 140-N on Plant Sanitary	The Law regulates the phytosanitary field in Armenia. It provides management relations, fixes mandatory phytosanitary requirements and the basic principles of phytosanitary process in the cultivation, storage, transportation or marketing of plants, plant products and other regulated articles, as well as obligations of natural and legal persons engaged in the cultivation of land.
2008	RA Law on Organic Agriculture	The Law regulates the production, preservation, processing, transportation and sale of agricultural products and materials as well as the storage of wild plants and defines the principles of and legal grounds for the management of organic agriculture, its main circulation demands, directions of state support, and the duties of the authorized body. One of the stipulated principles refers to the natural way of land physical, chemical and biological state improvement and fertility enhancement.
2011	RA Government Decree N 256-N on Approving the List of the Permitted Pesticides and Agrochemicals for Using in RA	The decree provides information on over 1400 materials and substances under 12 headings such as pesticides, herbicides, fungicides, rodenticides, biologically active materials, etc. It details the sales names, affecting material, content of the affecting material, the forms and producers.
2011	RA Government Decision N1396-N on Regulating the Use of Soil Fertile Layer	The Law regulates the relations related to efficient and purposeful use of the soil fertile layer, particularly the responsibilities of landowners and land users, jurisdictions of community heads and governors, counting and recording of data on removal, storage, transportation and use of the fertile layer of soil.

2006	RA Law on Specially Protected Natural Areas (2006)	The Law aims at setting forth the legal principles of State Policy for sustainable development, restoration, conservation and use of ecosystems, nature complexes and separate objects of Specially Protected Natural Areas of the RoA representing environmental, economic, social, scientific, historical-cultural, aesthetic, health, climate regulating, recreational and spiritual values. Article 4 provides that Specially Protected Natural Areas in the RA are State ownership. It is prohibited to transfer the state-owned lands of specially protected natural areas to private ownership. Article 4 provides that <b>Specially Protected Natural Areas</b> are taken into account for elaboration of economic and social development programs, territorial planning designs, land zoning and usage schemes, land, forest and city planning project documents and definition of boundaries of administrative units.
1995	RA Law on Environmental Impact Assessment Law (1995)	The Law provides that the objectives of environmental impact assessment are as follows: - analysis of intended activities, concepts and the possibility of their alternatives and expediency, taking into account all ecological restrictions. - appraisal of the possible effect and the degree of their danger of the intended activity, concept and their alternatives; - inspection of the degree of the possible ecological effect of intended activities, concepts and the possibility of their alternatives; the integrity of consequence analysis and accuracy; the adequacy of measures for monitoring, prevention, elimination or minimization of consequences during operation and implementation processes as well as in emergency situations; - provision of efficient and reasonable use of natural resources; - prohibition of any intended activity which can have an irreversible hazardous effect on the environment, unless otherwise stipulated in the Armenian legislation; - provision of participation and involvement of public in all phases of assessment. It also specifies the intended activities subject to assessment, scopes of assessment and notification procedures (including ... b) the size of the plot of land necessary for the intended activity, power, water and raw materials requirements; and f) the decision of the affected community on allotment of land).
	RA Law on Nature Protection and Nature Utilization Payments	The law provides obligatory payment to the state or community budget for implementation of nature protection measures, use and (or) sale of natural resources, which are considered state property. According to the law the nature utilization fee is a payment to the state budget for efficient, complex use of natural resources considered state property or a compensation payment for use and (or) sale of these natural resources.
2005	RA Forest Code	Regulates the relations related to the sustainable management, conservation, protection, restoration, afforestation, effective use of forests, as well as the registration, monitoring, control of forest lands of the Republic of Armenia.
2006	Law on Protected Areas	This law regulates the specially protected areas of the Republic of Armenia as ecological, economic, social, scientific, educational, historical and cultural, aesthetic, health, recreational ecosystems, legal bases of state policy of recovery, protection, reproduction and usage normal development of nature complexes and individual objects.
2014	Decision N1059 of the Government of the Republic of Armenia	The strategy of the protected areas of the Republic of Armenia, "state programs in the field of use and protection, and measures to approve it.
2018	RA Government Decision N 182	Establishment of the staff of the State Management Body of the Forest State Committee of the Ministry of Nature Protection of the RA.

Other important documents or innovations being promoted by the Republic of Armenia with direct links and impacts on pastures and extensive livestock management are the following:

- AR Government Decision N 389-N defining the procedure of using pastures and grazed lands (2011): The law stipulates the conditions for efficient use of pastures, management of grazed lands.
- AR Government Decision N 1477-N defining the establishing the procedure for the use of pastures and grazed lands (2010): According to Article 14, Part 3 of the Law of the Republic of Armenia "On Legal Acts", the Government of the RA decides to determine the amount of the fee for the use of pastures equal to the land tax rate of the land plot under the given pasture.
- Land Degradation Neutrality Strategy and Action Plan, 2015: The RA Government developed its Land Degradation Neutrality Strategy which includes four voluntary targets: (1) Stop cropland degradation and promote agro-ecology (conservation plus modern "organic" technology); (2) afforest and/or reforest 2/3 of the degraded land; (3) Stop deforestation and improve forest management in 100% of national territory; (4) Stop overgrazing and improve grassland management in 100% of national territory.
- The Strategy of the Main Directions Ensuring Economic Development in Agricultural Sector of the Republic of Armenia for 2020-2030: The Strategy prioritizes the land reform as an important step for the growth in agriculture sector. In particular, it envisages modernized and accurate land registration, adoption of an updated land legislation and development of technical measures to reduce abandoned lands. The overarching objective is to rapidly improve land productivity via rapid land consolidation, focusing on both land rental and sales markets.
- RA Strategic Development Program for 2014-2025, annexed to RA Government Decree N 442-N (2014): The program is comprehensive and reflects the government's main directions and priorities: job creation, export-oriented industrial policy implementation, development of small and medium-sized enterprises. It includes Agriculture and rural perspective development visions such as domination of production of agriculture products with high added value in the plant cultivation and animal husbandry intra-branch structure; improve servicing of agricultural equipment, implementation of state-supported programs on irrigation of pastures, ensuring access to and from pastures, promoting creation of 'cooperatives of pasture users' and supporting their activities, activities geared at addressing agriculture production and technical services, etc. The strategy also stresses the importance of arable land increase through improvement of agricultural machinery provision, implementation of programs for consolidation of fragmented lands with application of incentives (such as grants, subsidies, loans, etc.), implementation of measures for restoration of degraded lands and their incorporation into agricultural activity cycles, plantation of forest stripes for field protection, as well as provision of state support for cultivation of lands in unfavorable zones.
- National Forest Policy and Strategy Paper (2004): The main goal of the RoA National Forest Policy and Strategy is to ensure restoration of degraded forest ecosystems, sustainable use and development of useful properties of the forests. It stresses the need for safeguarding long-term and scientifically justified sustainable forest management, implementation of institutional and legislative reforms to support sustainable forest management, application of international indicators for sustainable forest management and quality standards for forest certification and assessment. Among the strategic objectives of the Policy is to develop scientifically proven forest management plans (long-term and short-term) to ensure sustainable forest management and to improve the legislative basis contributing to sustainable forest management, including the provision of strategic ways for definition of scientifically proven mechanisms (methodologies, standards, indicators, etc.) with the application of international experience (international standards, classifications, etc. in sustainable forest management).
- Program of the Government of RoA for 2017-2022; The Program presents activities of the RoA Government that will guarantee the country's sustainable development in the period between 2017 and 2022. For the purpose of protection of land and subsoil resources.

✓ Land Degradation Neutrality

Name of law or regulations	Areas /law regulation applies to
The Forest Code	In order to achieve the strategic objectives of the RA National Forest Policy the Forest Code was developed (2005), which regulates the legal relations in the field. According to the Code the forests of Armenia are state property (though it is possible to have community and private forests, Article 4) and they are managed by state structures. The Forest Code clarifies the competences of the Government of the Republic of Armenia, state authorized bodies, territorial bodies of state management and local self-governing bodies in the field of sustainable forest management.
The Land Code	The Land Code includes the state regulation and state policy of legal relations of land resources management, ownership and use. The LC defines the composition of the forest land, forest land classification and general conditions of use of forest land. This means that the Land code and Forest code are the acts having equal legal force, but it is a fundamental regulation of RA laws for the whole of the natural resources. The Land Code is of special importance for the nature protection field. It classifies land areas by different categories, by the level of importance and use purposes as well as sets forth the competences of state management bodies and land users (nature users), land protection functions, the status and structure of the state land cadaster and others.
RA governmental decision N 1192-N	This Law outlines the monitoring methodology for industrially polluted soils.
RA Mining Code	The Code provides a number of provisions relating to the protection of land relations and incorporates the concept of “re-cultivation” which assumes restoration measures aimed at the recovery of disturbed lands and bringing them into safe state to be viable for economic use and for conserving the environment envisaged by the design of extraction of minerals or geological exploration program.
RA Law on Control Over Use and Protection of Lands	The Law defines the issues of effective use and protection of land, supervision of compliance with the requirements of land legislation, forms, supervisory authorities, rights and responsibilities of inspectors and inspectors, procedures for inspections. It oversees the protection and use of lands within the respective jurisdiction by the highest body of professional supervision established by the RA Law on Local Self-Government-State Authorized Body; the governors and community leaders.
RA Law N 135-N on Food Safety	This law regulates food safety relationships and activities related to foodstuffs, food materials, food chains and trade and public catering, as well as provides for state guarantees for human health related with harmful substances and dangerous effects of foodstuffs and food materials. It regulates the basic principles and features of state control over food safety, veterinary and phytosanitary rights and obligations, duties of state controllers, as well as other relations related to state control.
RA Law N 140-N on Plant Sanitary	The Law regulates the phytosanitary field in Armenia. It provides management relations, fixes mandatory phytosanitary requirements and the basic principles of phytosanitary process in the cultivation, storage, transportation or marketing of plants, plant products and other regulated articles, as well as obligations of natural and legal persons engaged in the cultivation of land.
RA Law on Organic Agriculture	The Law regulates the production, preservation, processing, transportation and sale of agricultural products and materials as well as the storage of wild plants and defines the principles of and legal grounds for the management of organic agriculture, its main circulation demands, directions of state support, and the duties of the authorized body. One of the stipulated principles refers to natural way of land physical, chemical and biological state improvement and fertility enhancement.
RA Government Decree N 256-N on Approving the List of the Permitted Pesticides and	The decree provides information on over 1400 materials and substances under 12 headings such as pesticides, herbicides, fungicides, rodenticides, biologically active materials, etc. It details the sales names, affecting material, content of the affecting material, the forms and producers.

Agrochemicals for Using in Armenia	
RA Government Decision N1396-N on Regulating the Use of Soil Fertile Layer	The Law regulates the relations related to efficient and purposeful use of the soil fertile layer, particularly the responsibilities of landowners and land users, jurisdictions of community heads and governors, counting and recording of data on removal, storage, transportation and use of the fertile layer of soil.
RA Law on Specially Protected Natural Areas	The Law aims at setting forth the legal principles of State Policy for sustainable development, restoration, conservation and use of ecosystems, nature complexes and separate objects of Specially Protected Natural Areas of the Republic of Armenia representing environmental, economic, social, scientific, historical-cultural, aesthetic, health, climate regulating, recreational and spiritual values. Article 4 provides that Specially Protected Natural Areas in the RA are State ownership. It is prohibited to transfer the state ownedlands of specially protected natural areas to private ownership. Article 4 provides that Specially Protected Natural Areas are taken into account for elaboration of economic and social development programs, territorial planning designs, land zoning and usage schemes, land, forest and city planning project documents and definition of boundaries of administrative units.
RA Law on Environmental Impact Assessment Law (1995)	The Law provides that the objectives of environmental impact assessment are as follows: - analysis of intended activities, concepts and the possibility of their alternatives and expediency, considering all ecological restrictions. - appraisal of the possible effect and the degree of their danger of the intended activity, concept and their alternatives; - inspection of the degree of the possible ecological effect of intended activities, concepts and the possibility of their alternatives; The integrity of consequence analysis and accuracy; the adequacy of measures for monitoring, prevention, elimination or minimization of consequences during operation and implementation processes as well as in emergency situations; - provision of efficient and reasonable use of natural resources; - prohibition of any intended activity which can have an irreversible hazardous effect on the environment, unless otherwise stipulated in the Armenian legislation; - provision of participation and involvement of public in all phases of assessment. It also specifies the intended activities subject to assessment, scopes of assessment and notification procedures (including ... b) the size of the plot of land necessary for the intended activity, power, water and raw materials requirements; and f) the decision of the affected community on allotment of land).
RA Law on Nature Protection and Nature Utilization Payments	The law provides obligatory payment to the state or community budget for implementation of nature protection measures, use and (or) sale of natural resources, which are considered state property. According to the law the nature utilization fee is a payment to the state budget for efficient, complex use of natural resources considered state property or a compensation payment for use and (or) sale of these natural resources.

Other important documents or actions are being promoted by the Republic of Armenia with direct links and impacts on land use and management regarding LD are the following:

- Land Degradation Neutrality Strategy and Action Plan, 2015: The RoA Government developed its Land Degradation Neutrality Strategy which includes four voluntary targets: (1) Stop cropland degradation and promote agroecology (conservation plus modern “organic” technology); (2) afforest and/or reforest 2/3 of the degraded land; (3) Stop deforestation and improve forest management in 100% of national territory; (4) Stop overgrazing and improve grassland management in 100% of national territory.
- The Strategy of the Main Directions Ensuring Economic Development in Agricultural Sector of the Republic of Armenia for 2020-2030: The Strategy prioritizes the land reform as an important step for the growth in agriculture sector. In particular, it envisages modernized and accurate land registration, adoption of an updated land legislation and development of technical measures to reduce abandoned lands. The



overarching objective is to rapidly improve land productivity via rapid land consolidation, focusing on both land rental and sales markets.

- RA Strategic Development Programme for 2014-2025, annexed to RA Government Decree N 442-N (2014): The programme is comprehensive and reflects the government's main directions and priorities: job creation, export-oriented industrial policy implementation, development of small and medium-sized enterprises. It includes Agriculture and rural perspective development visions such as domination of production of agriculture products with high added value in the plant cultivation and animal husbandry intra-branch structure; improve servicing of agricultural equipment, implementation of state-supported programs on irrigation of pastures, ensuring access to and from pastures, promoting creation of 'cooperatives of pasture users' and supporting their activities, activities geared at addressing agriculture production and technical services, etc. The strategy also stresses the importance of arable land increase through improvement of agricultural machinery provision, implementation of programs for consolidation of fragmented lands with application of incentives (such as grants, subsidies, loans, etc.), implementation of measures for restoration of degraded lands and their incorporation into agricultural activity cycles, plantation of forest stripes for field protection, as well as provision of state support for cultivation of lands in unfavorable zones.
- National Forest Policy and Strategy Paper (2004): The main goal of the RA National Forest Policy and Strategy is to ensure restoration of degraded forest ecosystems, sustainable use and development of useful properties of the forests. It stresses the need for safeguarding long-term and scientifically justified sustainable forest management, implementation of institutional and legislative reforms to support sustainable forest management, application of international indicators for sustainable forest management and quality standards for forest certification and assessment. Among the strategic objectives of the Policy is to develop scientifically proven forest management plans (long-term and short-term) to ensure sustainable forest management and to improve the legislative basis contributing to sustainable forest management, including the provision of strategic ways for definition of scientifically proven mechanisms (methodologies, standards, indicators, etc.) with the application of international experience (international standards, classifications, etc. in sustainable forest management).
- RA National Forest Program (RA Government Decision on 21.7.2005, N 1232-N). Program of Activities for Forest use, protection, rehabilitations.
- Programme of the Government of RA for 2017-2022; The Programme presents activities of the RA Government that will guarantee the country's sustainable development in the period between 2017 and 2022. For the purpose of protection of land and subsoil resources, the RoA Government plans to: (1) by the end of 2017, improve the legislation on environmental monitoring and accountability by subsoil users, introducing a current monitoring system; (2) by the end of 2017, adopt a concept paper for management of the reclamation fund for the purpose of targeted use of funds allocated to the environment protection fund (reclamation fund) by subsoil users and for the restoration of degraded lands; (3) during 2018-2020, introduce mechanisms ensuring the implementation of the concept paper provisions.
- Governmental Decision N 1192-N adopted by the RA government on August 18, 2011 sets monitoring methodology of industrially polluted soils.
- RA government's decision N 387 Main directions of activities of the RA Ministry of Environment aimed at ensuring national security strategy were approved on April 8, 2010. According to the above decision, internal threats include forest and land degradation, desertification, deficiency in the level of environmental education of the public and lack of awareness.
- RA government's decision 2011 N 1918-N (December 29), Procedure for establishing temporary scheme of land use. The temporary land use scheme is drawn up on the basis of cadastral maps, topographical surveys and, if not, land use plans. A temporary land use scheme is designed to change the purpose of the land use.
- RA Government decision N 389-N adopted in April 14, 2011 -On establishment of procedure for use of pastures and grasslands.

✓ **Institutional framework relevant for land resources and LDN implementation:**

<b>Stakeholder (group)</b>	<b>Mandate (or activities)</b>	<b>Potential role in Project</b>
Ministry of Environment	The Ministry is the focal point for UNCCD, UNFCCC and CBD, and is responsible for the monitoring and implementing of land degradation neutrality in Armenia.	Provide co-financing, technical and logistical support for the project implementation, support the identification of demonstration sites, benefit from capacity building activities. Mainstream sustainable management and restoration of degraded grasslands landscapes into the NBSAP
Environmental Project Implementation Unit, State Agency of the Ministry of Environment	It is the agency in the Ministry of Environment responsible for liaison with government authorities from different sectors. It will oversee integration of conservation measures and monitoring system into the Integrated Forest and Land Use Plans and annual work plans and contribute to capacity building of stakeholders (public / private / community).	Responsible for the project implementation. Lead the coordination among the governmental stakeholder and support the implementation of the coordination mechanisms at both national and local level
Ministry of Territorial Administration and Infrastructure	It is the central body of executive authority that develops and implements the policy of the Government of the Republic of Armenia in the field of territorial administration and infrastructure management	Responsible for the coordination with Local Self-Governing Bodies (Gegharkunik, Vayots Dzor marzes) and the cross-sectoral policies/legal framework supporting LDN compatible ISLUPs developed by the project, and supporting LDN implementation at sub-national level (building on the UNCCD mechanism) and benefit from capacity building activities
Ministry of Economy (includes former Ministry of Agriculture as department)	Under the agriculture sector, it is responsible for the country agrarian policy, rural extension service and all activities related to food production, processing and value chain	Support and provide co-financing for the implementation of the activities related to agriculture, also they will be responsible for reviewing and approving various plans, manuals and guidelines produced by the project or legal amendments as necessary which will facilitate mainstreaming LDN principles in the agricultural; The ministry will benefit from capacity building activities.
Forest Committee (Ministry of Environment)	Responsible for conservation, protection, restoration, afforestation and effective use of state forests; ensuring sustainable forest management, the implementation of measures to increase the productivity of the state forests; the protection of biodiversity of state forests; efficient use of the environmental, social and economic potential of state forests; provision of complete and reliable information on the forest lands and forests	Support the project implementation and all activities related to forest management, restoration and new practices, also the Forest Committee be involved in the policy review process and will be important stakeholder in the cross-sectoral coordination mechanism
State Committee of Real Estate Cadastre	It maintains state registry of real estate and geospatial information systems, promotes development of real estate market, as well as	Responsible for the implementation of the monitoring system of the LDN targets.

	development and implementation of land policy.	
Armenian National Agrarian University	State university and higher educational institution based in Yerevan. The university trains and prepares specialists for the agricultural sphere.	The Agrarian University would contribute to the knowledge generation and knowledge transfer of the project including development of knowledge products and training content
Local Self-Governing Bodies (Gegharkunik and Vayots Dzor Regions)	They are responsible for the development and implementation of the ISLUPs, in each region and community. They are also responsible for monitoring land use practices in the areas under the jurisdiction of the self-governing bodies.	The regional governors will support cross-sectoral coordination of LD and BD and IWRM agenda in Lake Sevan Basin landscape, supporting LDN targets implementation at regional levels, reporting progress towards LDN from regional and national levels, and will be part of the coordination mechanisms (building on the UNCCD mechanism) between the national level and local decision makers as well as the coordination mechanism with farmer groups/extension. They will be participating into and implementation of the ISLUPs.

#### ✓ **Biodiversity and Protected Areas**

The Republic of Armenia has adopted a number of laws and regulations regarding the protection of fauna and flora since 1991. The Republic of Armenia Law "On Flora" (23.11.1999) and Law "On Fauna" (03.04.2000) which state the national policy on scientifically justified conservation, protection and sustainable use of flora and fauna. In 2006 RA Law on Specially Protected Nature Areas (SPNAs) (Decision № 211-N dated November 27, 2006) was approved including a number of legislative acts:

- "SPNA monitoring organization and implementation order" (Decision № 1044-N dated August 30, 2007).
- "SPNA" state cadastre conducting order" (Decision № 259-N dated March 20, 2008).
- "SPNA establishment order"(Decision N<sup>2</sup> 72-N dated January 22, 2009).
- Approval of "Methodological guidelines of SPNA management plan" by the decree N<sup>2</sup> 364-A of the Minister of Nature Protection dated 27.10.2008.
- Approval of the order N 60-A of the Minister of Nature Protection of RA dated 12.02.2008 on "Uniform of legal entities, security officers in charge of SPNA conservation, conditions and order of wearing".

**Management of Protected Areas and Biodiversity:** The Ministry of Environment (MoE) is principally responsible for natural resource management and biodiversity conservation. The MOE houses the focal points for the UNCBD, UNFCC, and UNCCD and oversees implementation of related issues. Armenian law gives the MOE ultimate management authority over all four Protected Area types (Reserves, National Parks, Natural Monuments and Sanctuaries). The MOE currently manages eight Sanctuaries. The Ministry of Agriculture manages all forested lands in Armenia through Hayantar (Armenian Forestry). Hayantar currently takes responsibility for thirteen Sanctuaries.

UN Convention on Biological Diversity (Article 8) presents in-situ conservation as a prior strategic direction of biodiversity conservation, which is fully reflected in protected areas (Specially Protected Nature Areas (SPNA). According to the standards of the International Union for Conservation of Nature (IUCN), there are 6 categories of protected areas, 4 of which are legally regulated in the Republic of Armenia. The new category 5 "Protected Landscape" is envisaged to be included in the new draft bill on protected areas.

To respond to the international commitments under the CBD, Armenia adopted: the Decree №1059 of the Republic of Armenia, dated September 25<sup>th</sup> 2014 and the "The Strategy of Specially Protected Nature Areas of the Republic of Armenia and the state program of their use and conservation" (SSPNA) and the "State Program and Measures for the Conservation and Use of Specially Protected Nature Areas of Armenia for 2014-2020", under which the following strategic goals for the development of Specially Protected Areas of Armenia (SPNA) were defined:

- Ensuring environmental sustainability and healthy and favorable environment for the country through the development and enhancement of the SPNA system.
- Protection of ecological, socio-economic, scientific, educational, recreational and spiritual values of protected areas that should be carried out through conservation, rehabilitation and long-term use of ecosystems, genetic resources, biological and landscape diversity.

Furthermore, through the Annex 1 to the Protocol Decision N54 as of December 10, 2015 the Government of the Republic of Armenia (RA) the "Strategic Plan for the Conservation, Protection, Reproduction and Use of Biological Diversity of the Republic of Armenia" was approved and by Annex N2 "On the Protection of Biological Diversity of the Republic of Armenia" the Government approved National Biodiversity Action Plan for 2016-2020 in the Field of Protection, Reproduction and Use of Biological Diversity of the Republic of Armenia" (NBSAP), the following prioritized strategic path to biodiversity conservation and use unions are identified ;

- Improvement of the biodiversity legislation and management system.
- Improvement biodiversity and ecosystem preservation and rehabilitation of affected populated areas.
- Reducing direct pressure on biodiversity and promoting sustainable use;
- Elimination of major causes of loss of biodiversity through regulation of inter-sectoral relations and raising public awareness.
- Stimulation of scientific research, knowledge management and capacity building in the field of biodiversity conservation and sustainable use of natural resources.

✓ **Institutional framework for the implementation of Protected Areas, Biodiversity management and sectorial mainstreaming and integration with land and water resources**

Institution	Description/Role in the project
Ministry of Environment (MoE)	<p>The Ministry of Environment is responsible for environmental protection and rational use of natural resources, prevention or reduction of negative impact on air, waters, soil, flora and fauna, protected areas and forests, wetlands.</p> <p>The MoE will play a leading role in the Intersectoral Stakeholder Coordination Committee for LDN implementation in Lake Sevan (Component 1; Output 1.1.3), organization of Innovation Challenge for identification of biodiversity alternative financing sources, organization of awareness and training activities.</p> <p>MoE is the Implementing Partner for this project and a key partner in promoting/advocating for formal approval of policy measures aiming at mainstreaming biodiversity into spatial and land use planning and improvement of Sevan National Park's management.</p> <p>MoE will ensure the sustainability of the Agri-Environmental Payment Scheme tested by the project by embedding this scheme in the governmental programmes financing pastures management.</p>
WWF Armenia	<p>Operational since 2002, WWF is implementing projects focused on development and strengthening Ecological network of Armenia, conservation and restoration of threatened species, mitigation and adaptation of climate change impact on forest ecosystems, introduction of economic mechanisms for alternative livelihood for local communities in order to promote sustainable use of natural resources.</p> <p>The WWF Armenia was selected by the Ministry of Environment (MoE), in consultation with UNDP CO, based on the following criteria: a) long-lasting experience with Protected Areas and biodiversity management; b) experience with wildlife population assessments and establishment of migration friendly corridors supported by the local communities; c) experience with the implementation of environmental incentives for biodiversity friendly agricultural practices around Key Biodiversity Areas (KBAs); d) successful record of implementing</p>

	international donor funded projects. From this perspective, the WWF Armenia’s comparative advantage and internal capacities were acknowledged since the PIF stage and validated through HACT and PCAT assessments. Upon the project inception, the MoE in its capacity as Implementing Partner (IP) of this project through its affiliated EPIU, will enter into an agreement with WWF Armenia, for the realization of the Component 2 and Output 3.1.4, based on a final validation and budget fine-tuning that will be further agreed between parties during the inception period.
Ministry of Economy	The Ministry of Economy is mandated with the development, implementation, coordination, and assessment of the results of economic policy, implementation of unified agrarian policy of the Government, technical and technological equipment of agriculture sector and introduction of innovative solutions, promotion of organic agriculture, development of agricultural cooperation. The Ministry of Economy is a key project partner in implementation of LDN and SLM measures and ensuring the sustainability of the Agri-Environmental Payment Scheme tested by the project by embedding this scheme in the governmental programmes financing pastures management.
Ministry of Territorial Administration and Infrastructure of the Republic of Armenia	Mandated with the increasing of performance efficiency of regional administrations and local self-governance bodies, development of recommendations on introduction of waste removal and sanitary cleanup system in compliance with international norms, development and implementation of state policy in energy and transport sectors.  The Ministry is a key partner in implementation of LDN guided land use planning, review and approval of the biodiversity-sensitive and climate-sensitive ISLUPs. The ministry will be involved in all the discussions related to ecosystems connectivity and biodiversity mainstreaming in buffer and productive areas.
The Water Committee	This is a public agency under the Ministry of Territorial Administration and Infrastructure, which develops and implements the policy of the government regarding the management and use of state-owned water management, and it will participate in the inter-sectoral coordination mechanism at Lake Sevan Basin landscape level, other working groups related to the development of integrated monitoring database in the Lake Sevan National Park and trainings.
Urban Development State Committee	Mandated with the development of “green urban development” principles, ensuring harmonic development of natural and cultural landscapes. The Urban Development Committee will participate in the LDN and spatial and land use planning meetings and working groups as well as trainings and awareness sessions.
State Committee of Real Estate Cadaster	Mandated with the land use data management, development of land policy, principles of management of land resources, development and implementation of geodesy and mapping project. The Cadaster Committee is a key partner in the implementation of LUP4LDN and LDN guided land use planning.
Statistical Committee of the Republic of Armenia	Mandated with the development, production and dissemination of official statistics according to the statistical programs. The Statistical Committee will be involved in Land use planning, socio economic and biodiversity data collection and analysis.
Environmental Protection and Mining Inspection Body of the Republic of Armenia	Mandated to ensure compliance with safety and legislative requirements related to nature protection and mining. Beneficiaries of training and awareness sessions.
Gegharkunik and Vayots Dzor Regional Administrations	Mandated with the implementation of territorial policy of the Government, coordination of activities of territorial units of executive institutions of the country. The regional authorities are key partners in LDN target setting, approval and implementation and monitoring. Beneficiaries of trainings and awareness sessions.
Committee of Forest of the Ministry of Environment of the	Mandated to ensure sustainable management of state forests, including protection, reforestation, afforestation and efficient use. The local branches of Hayantar SNCO are key

Republic of Armenia (Chambarak and Vayots Dzor branches of Hayantar SNCO)	partners in the development and implementation of sustainable forest management plans and restoration of forest ecosystems. Beneficiaries of trainings and awareness.
«Hydrometeorology and Monitoring Center» State Non-Commercial Organization	Mandated with the collection, analysis and protection environmental and hydrometeorological data. The Center will participate in the project’s activities, climate change assessments and working groups, trainings.
“Sevan National Park” State Non-Commercial Organization	Mandated to ensure the normal process of development of aquatic and terrestrial ecosystems, protection of natural and historical monuments of Lake Sevan basin. The Park administration is a key partner for the implementation of the activities related to biodiversity in and around PA and community outreach. Beneficiary of training and awareness sessions, conservation and research activities.
Foundation for Restoration of Sevan Trout Stock and Development for Aquaculture	Mandated with the restoration of trout stock in Lake Sevan, establishing and development of Sevan trout production and realization value chains and related branches, solving of Lake Sevan problems, development of production and processing of aquaculture in Armenia, development of knowledge-based and innovative technologies.  The Foundation will support data collection and analysis on ichthyofauna of Lake Sevan and analysis of threats and impact and will support capacity building on sustainable fishing/aquaculture.
Caucasus Nature Fund (CNF)	CNF is a conservation trust fund created to safeguard the Caucasus ecoregion- one of the global biodiversity hotspots. It provides matching grants and technical assistance to protected areas in Armenia, Georgia, and Azerbaijan, building capacities to sustain natural parks for future generations. Initially established in 2007 by the German Government (MBZ), Conservation Internationals and the WWF, today Caucasus Nature Fund is a multi-stakeholder organization.  Beneficiaries of trainings and awareness activities. Partners in the organization of joint events and knowledge management.
Local Self-Governance Bodies	These local authorities are in charge with monitoring the implementation of the environmental regulations, including promotion of environmental education, promotion of tourism, implementation of disaster risk reduction measures, waste removal and sanitary clean-up in communities. They are key partners in the development and implementation of pastures management plans, forest management plans, and agroforestry measures. Beneficiaries of trainings and awareness activities.
Local natural resource users groups	<ul style="list-style-type: none"> <li>• National Union of Farmers- regional branches</li> <li>• Ghegarkunik Water Users Associations (Ghegarkuni region)</li> <li>• “Yeghegnadzor” Water Users’ Association (Vayots Dzor)</li> <li>• Project beneficiaries</li> </ul>
Private sector	The project will work with the representatives of tourism/hospitality industry in Lake Sevan basin. The project will also focus on small livestock entrepreneurs and local agriculture producers, and other local small tourism entrepreneurs in targeted villages/municipalities. The project will work with financial institutions to encourage/promote green lending to support responsible and sustainable agriculture and tourism business models.  Project beneficiaries.

Financial Institutions	<p>The project will work with the representatives of financial institutions (EBRD; ACBA Bank; FinBank; Inecobank) with portfolios in agriculture sector and tourism sector in order to ascertain the feasibility of piloting an agri-environmental payment scheme and explore operationalization options of such a mechanism for sustainable pasture management and financing biodiversity friendly agriculture practices.</p> <p>Beneficiaries of training and awareness activities.</p>
Center for Ecological-Noosphere Studies, National Academy of Sciences, RA	<p>The Center is conducting various assessments: assessment of ecological status of territories, development of scientific and methodological fundamentals of risk analysis, optimization of natural resource management processes, solution of problems in the area of human ecology. It will be a key partner in promoting LDN guided land use planning, mainstreaming of biodiversity spatial elements into land use planning, roll-out of the LUP4LDN software for land use planning, setting up integrated monitoring data base at Lake Sevan National Park, monitoring of key species, trainings and data analysis.</p>
Institute of Botany, National Academy of Sciences, RA	<p>The Institute is in charge with inventories of flora, vegetation and plant resources of Armenia, development of principles for increasing the efficiency of main forest systems, importing and adaptation of vegetation and plant resources, study of dynamics of changes of vegetation of Armenia. The Institute will be a key partner in the assessments of palearctic grassland areas and management recommendations, as well as knowledge management, knowledge sharing, targeted research.</p>
Scientific Center of Zoology and Hydroecology, National Academy of Sciences, RA	<p>Studying of hydro- and terrestrial ecosystems of Armenia, biodiversity, taxonomy, morphology, ecology, ethology, evolution, genetics, zoogeography of invertebrate, vertebrate animals and hydrobionts, and parasitic fauna of animals.</p> <p>Assessment of bioresources, development of their conservation methods, restoration and sustainable use. The Institute will participate into species survey, management recommendations, as well as knowledge management, knowledge sharing, targeted research.</p>
Armenian National Agrarian University	<p>The University is in charge of the preparation of agritechnology specialists capable of developing the food and agriculture system in the country with the help of their professional skills and through cooperation with the sector's stakeholders. The University will participate to surveys, analysis of biodiversity and land degradation assessments.</p>
Gavar State University	<p>Mandated with the provision of higher education, including in biology, nature protection and use, mapping and cadaster. The University will participate to surveys, analysis of biodiversity and land degradation assessments. The University will update the environmental management and cadaster work and courses by capturing the project's training materials, ensuring sustainability of the knowledge generated by the project.</p>
Media	<p>Key partners of the organization of awareness raising dissemination of information on project activities.</p>
NGOs	<p>Participation in consultations, training and capacity building activities, development of local knowledge, implementation of project-related activities.</p>
GIZ Armenia	<p>Operational since 2002 in Armenia, the GIZ initiatives in Armenia are part of a strategic approach to support regional cooperation under the Caucasus Initiative in several areas: sustainable economic development, democracy and environmental governance. The results under GIZ supported initiatives will be analyzed and the project will ensure close coordination with current GIZ supported measures.</p>
Other International Organizations	<p>Coordination and support to development of national policies related to conservation and sustainable management of land resources and high value ecosystems in Lake Sevan landscape.</p>

✓ **Water Resources**

№	Name of the Legal Act:	Decision Number and Date of Adoption	Areas /law regulation applies to
<b>Documents on Water Resources Management:</b>			
1	Resolution "On reformation of management of the water economy system"	The Government of the RA, 92 - N, February 9, 2001	Financial rehabilitation of companies of water economy system; improvement of quality of service of these companies, improvement of tariff policy, and implementation of economic reforms in the water sector.
2	Resolution "On approving the classification of exploitable underground water deposits and forecasted resources"	The Government of the RA, 94, 2 February, 2002	Classification of exploitable deposits of underground fresh water and forecasted resources.
3	Resolution "On approving the regulations and structure of the Water Resources Management Agency of the Ministry of Nature Protection of Armenia"	The Government of the RA, 649 -N, 1 4 May, 200 4	Definition and regulations of objectives, tasks, functions, organization of works of the Water Resources Management Agency: of the Ministry of Nature Protection of Armenia".
4	Water Code of the RA:	RA National Assembly, HO - 373 - N, June 4, 2002	Integrated river basin management; Distribution of water resources based on supply, and not demand: Provision of water use permits based on monitoring information; Use of economic instruments in management and cost - recovery of: water resources.
5	Law "On Water Users Companies and Water Users Companies Associations"	RA National Assembly, HO-374- N, June 4, 2002	The objective of the Law is to define the scope of activity of the Water Users Companies and their Associations, the order for their establishment and termination, as well as the principles of their relationship with the public and other bodies. The activity of these Institutions aimed at increasing the effectiveness of the irrigation system in the Republic of Armenia.  Three previously operating WUAs within Sevan RBD ("Vardenis", "Martuni" and "Gavar" are united to one - "Gegharkunik" WUA.
6	Resolution "On approving the water use permit exemplary sheets and water use permit forms"	The Government of the RA, 218-N, March 7, 2003	Water use permit form sheet, and water use permit forms.
7	Resolution "On determination of the order of water resources	The Government of the RA, 354 - N, March 13, 2003	Defines principles and rationale of water abstractions quantity and regimes from water resources use, according to water use purpose.



	abstraction rates and regime provided to water users ”		
8	Resolution “On approving the order for alternative re-inventory of water resources”.	The Government of the RA, 499 - N, April 3, 2003	Regulates the methodology of water abstraction quantity calculation in the territory of Armenia in case of hydrological monitoring absence post.
9:	Resolution “On approving the order of using drainage waters”.	The Government of the RA, 461-N, April 17, 2003	Regulates the order of drainage water use taking into consideration the relationship between the state management, self - governance bodies and legal and physical entities.
10	Resolution “On the order of providing information on transboundary water resources”.	The Government of the RA, 612-N, May 8, 2003:	The document regulates the public disclosure of information on qualitative and quantitative indicators of transboundary water resources of the Republic of Armenia, as well as on conditions of their use, measures of prevention, limitation and reduction of transboundary effects and on the use and protection of water systems.
11	Resolution "On defining the specifics of status, composition, and use and protection of water objects - natural monuments".	The Government of the RA, 620 - N, May 22, 2003	Assigning the status of natural monuments to lakes, rivers, ponds, geysers, thermal and mineral water springs and glaciers, their composition protection and use specifics.
12	On approving the order of water resources monitoring implementation and registration of their reports:	The Government of the RA, 639 - N, May 22, 2003	Rules of water resources monitoring operative data collection, registration, processing summarization and reporting.
13	Resolution “On approving the order transferring water use permit to the other: entities and providing the right through subcontract ”.	The Government of the RA, 702-N, May 22, 2003	Transfer, including selling of water use permit or part of the permit right from holder of this permit to another entity.
14	Resolution “On approving the order of use of water resources for the needs of fish farms”.	The Government of the RA, 703 - N, May 22, 2003	The document regulates the order of water resources use for the fish - farming needs.
15	Resolution “On approving the order of using natural medicinal water resources”.	The Government of the RA, 812-N, May 22, 2003	Rules of use of natural medicinal waters.
16	Resolution “On approving the order of free water use”.	The Government of the RA, 816-N, June 5, 2003	Legal relationships related to free water use:
17	Resolution “On approving the order for use and outflow permit of wells absorbing: drainage water, consumed mines and open mines ”.	The Government of the RA, 982-N, July 10, 2003	Rules for providing water use and discharge permit for wells absorbing drainage wastewater from mining.
18	Resolution “On: approving the order for document registration: in the State Water Cadaster and provision of information”	The Government of the RA, 1060-N, July 22, 2003	Rules for document flow in the State Water Cadaster, collection and provision of information, and related competence of the authorized body:

19	RA Law "On Fundamental Provisions of the National Water Policy".	RA National Assembly, HO - 96, May 3, 2005	Perspective development of strategic use and protection of water resources and water systems, Assessment of water resources accessibility, characterization of national water reserve, formation of water resources supply and demand, Water resources use priorities, Principles of River basin management and planning,
20	RA Law "On National Water Program".	RA National Assembly, HO - 232, November 27, 2006	Establishing of concepts of National water reserve, Strategic water reserve, Usable water resources, Water supply and demand, protection and development of water sector, Implementation of national water program measures.
21	Resolution "On water quality maintenance depending on the river basin management district's peculiarities".	The Government of the RA, 75 - N, January 27, 2011	Defines quality classes for surface waters according to water use purpose considering the following quality indexes: temperature, Ph, concentration of the more than 30 chemical elements and compounds, biological and other pollutions. Also, water quality norms defined in differentiated way, ie depending on the river basin management district's peculiarities.
22	Resolution "On approving the outline of the model river basin management plan".	The Government of the RA, 4, February 3, 2011 updated: 45-6, October 26, 2017	The Law outlines the model of river basin management plan and development of technical characteristics for 6 water basin management plans.
23	Resolution On "Definition of demand of drinking-domestic, agricultural waters demand and ecological leave in the each of river basin management districts of the Republic of Armenia".	The Government of the RA, 927 - N: June 30, 2011	Regulates provision of ecological equilibrium of water resources, protection of national water reserve and efficient organization of the water resources management.
24	Comprehensive and Enhanced Partnership Agreement (CEPA)	EU / Armenia, November 24, 2017	European Union and Armenia signed an agreement aimed at significantly deepening their relations at a ceremony in Brussels on Friday held on the sidelines of the Eastern Partnership Summit.  Signatures to the document entitled the Comprehensive and Enhanced Partnership Agreement (CEPA) were put by High Representative of the European Union for Foreign Affairs and Security Policy Federica Mogherini and Today's Foreign Minister Edward Nalbandian.  With new agreement, among other things, Armenia will take obligations to approximate its legislation to the EU acts and international instruments. In the field of water quality and resources management, this approximation will include 5 Directives: Water Framework Directive, Floods Directive, Urban Wastewater Directive, Drinking Water Directive and Nitrates Directive.
<b>Other Relevant Strategic Documents:</b>			
1	Law of RA on Atmospheric Air Protection:	RA National Assembly, HO-121, November 1, 1994	The tasks are maintenance of purity of atmospheric air and improvement of its quality, reduction and prevention of chemical, physical, biological and other harmful impacts on a condition of atmospheric air,

			regulation of public relations, and also strengthening of legality in this sphere.
2	Flora Code of the RA	RA National Assembly, HO-22, December 27, 1999	The law on Flora defines the State policy of the Republic of Armenia on scientifically motivated protection, maintenance, reproduction and use of natural flora.
3	Fauna Code of the RA	RA National Assembly, HO-52, May 12, 2000	The law on fauna defines the State policy on protection, maintenance, reproduction and use of wild species in the Republic of Armenia.
4:	Land Code of the RA	RA National Assembly, HO-185, May 2, 2001	Defines and regulates the basic directions of State regulatory system improvement concerning land relations, development of various organizational and legal forms of land economy, fertility of land, land use efficiency raise, protection and improvement of an environment - favorable for human vitality and health and the legal framework concerning the protection of the rights on land.
5	Law of RA on Freedom of Information:	RA National Assembly, HO-11-N, September 23, 2003:	Regulates the relations connected with freedom of information, defines the powers of persons holding (possessing) information, as well as the procedures, ways and conditions to get information.
6	Forest Code of the RA	RA National Assembly, HO-211-N, October 24, 2005	Regulates relations connected with sustainable forest management - guarding, protection rehabilitation, afforestation and rational use of forests and forest lands of the Republic of Armenia as well as with forest stock-taking, monitoring, control and forest lands.
7	Law of RA on Specially Protected Areas	RA National Assembly, HO-211-N, November 27, 2006	Regulates the State policy of the development, restoration, protection, reproduction and use of ecological systems, natural complexes and separate objects representing special protected natural areas of the Republic of Armenia as ecological, economic, social, scientific, educational, historical-cultural, aesthetic, health, recreational value legal bases.
8	Mining Code of the RA	RA National Assembly, HO-280-N, December 28, 2012	Defines principles and order of mining throughout the territory of the Republic of Armenia, governs relations associated with protection of nature and environment from deleterious effects, ensures security of works during mining, as well as protection of rights and legitimate interests of state and individuals during mining.
9	Law of RA on Environmental Impact Assessment and Expertise	RA National Assembly, HO-110-N, June 21, 2014	Regulates public relations pertaining to environmental impact assessment in the Republic of Armenia, including state expert examination of transboundary and environmental impact assessment.
10	2014-2025 Strategic Program of Prospective Development of the Republic of Armenia	The Government of the RA, N 442 - N, March 27, 2014	Three groups of goals are separated in the Strategic Program of Prospective Development: 1. During the period 2008-2021, reducing material poverty to the level that it stops being the key problem to the economic development of the country, and extreme poverty is generally eliminated as a socially significant phenomenon.

			<p>2. Human poverty eradication and human progressive development, as a result of which the country had to move from a group of countries with moderate human development to a group of countries with high human development.</p> <p>3. Restraint of economic development disparities and ensuring progressive growth of the lagging territories through the development and implementation of appropriate regional policy.</p>
11	Second National Environmental Action Plan	The Government of the RA, 2008	<p>NEAP – 2 was developed in order to make environmental protection more efficient. It provides a systematized package of environmental policy instruments to minimize the pressure on the natural environment. NEAP – 2 should make the current and forthcoming sectorial strategies and action plans in the environmental sphere more coordinated; it must refer to the solution of both known and newly identified environmental problems, as well as consider RA international commitments in the environmental sector.</p>
12	National Energy Efficiency Action Plan	The Government of the RA. July 21, 2010	<p>The main objective of the action plan is to contribute to the formulation of the future energy policy of Armenia and to define concrete steps for its implementation. One of the main aims of the national policy in the energy sector is defined to improve energy efficiency and to further develop the use of renewable energy sources.</p>
13	Third National Communication on Climate Change	The Government of the RA, 2015	<p>The Third National Communication (TNC) on Climate Change of the Republic of Armenia (Armenia) was developed according to Articles 4.1 and 12.1 of the United Nations Framework Convention on Climate Change (UNFCCC) and the Guidelines for national communications of Non-Annex I Parties to the Convention (UNFCCC 2003).</p>

✓ Reviewed Legal Documents related to the Lake Sevan

№:	Name of the Legal Act:	Adopted by Decision No and Date of Adoption:	Areas /law regulation applies to
1	Resolution "On priority measures for regulation of conservation and use of natural resources of Lake Sevan"	The Government of the RA, 261, April 22, 1999	This Decree establishes norms and tasks for improving the condition of the Lake Sevan caused by irrigation and water intake for energetics purposes and the abrupt decline of the lake level caused by the uncontrolled use of water in the lake basin and its ecological condition.
2	Law of RA on Lake Sevan:	RA National Assembly, HO-190, July 04, 2001	This Law establishes legal and program framework of the state policy for restoration, reproduction, protection and use of natural resources of Lake Sevan as of an ecosystem that has a strategic significance and economic, social, scientific, historical-cultural, esthetical, recreational and spiritual: value for the Republic of Armenia.
3	Resolution "On authorizing the Ministry of Nature Protection of the Republic of Armenia as the state management body in the field of nature protection for Lake Sevan ecosystem restoration, conservation, reproduction, natural development and use"	The Government of the RA, 809, September 05, 2001	The decision defines the empowerment of the Ministry of Nature Protection of RA authorized in the field of environmental protection, restoration, reproduction, natural development and use of the Lake Sevan ecosystem.
4	Law of RA on "Adoption of the Annual and Complex Programs of Activities for the Use, Protection, Reconstruction and Reproduction of the Lake Sevan Ecosystem"	RA National Assembly, HO-276, December 14, 2001	The main objective of the Program is to preserve Lake Sevan as a national and regional freshwater reserve, to restore the ecological balance and to ensure the harmonious development and sustainable use of the Lake Sevan basin ecosystem.
5	Resolution "On approving the list of substances, biogenic elements, heavy metals or their compounds having negative impact on Lake Sevan ecosystem"	The Government of the RA, 57, January 24, 2002	This decision defines the list of substances (such as heavy metals or their compounds and other) which have a negative impact on Lake Sevan ecosystems, vital elements.
6	Resolution "On Reorganization of" Sevan "National Park State Institution, Approval of Charter of" Sevan "National Park and" Sevan National Park "State Non-Commercial Organization"	The Government of the RA, 927-N, May 30, 2002	This resolution defines the reorganization of Sevan National Park State Non-Commercial Organization.
7	Resolution "On approving the project on regional planning of Lake Sevan catchment basin"	The Government of the RA, 1787-N, December 11, 2003	The decision defines the area of the Lake Sevan basin as an object of special regulation of urban development activities. This draft is approved by the territorial plan of Lake Sevan basin development.
8	Resolution "On establishing a foundation for restoration, conservation and development of Lake Sevan"	The Government of the RA, 517-N, April 28, 2011	Established foundation for Lake Sevan restoration, protection and development, approved foundation statute.

9	Resolution "On approving of the program of measures on implementation of ecosystem and hydrological monitoring of Lake Sevan developed by the Committee on Lake Sevan Problems under the President of Armenia"	The Government of the RA, 987-N, July 14, 2011	The resolution establishes the program of measures on the Lake Sevan ecosystem and hydrological monitoring developed by the Presidential Commission on Lake Sevan issues.
10	Resolution "On Approving the Procedures for Establishment of a Shared Electronic Database, Information Collection, Registration, Processing and Provision based on the Monitoring Data in Lake Sevan and its Watershed"	The Government of the RA, 947-N, September 04, 2014	This decision establishes the procedure for development of a unified and centralized electronic database of information on Lake Sevan and its basin and order of data collection, registration, summarizing and information sharing to public.
11	Resolution "On 2018 Annual Program of Measures for Restoration, Protection, Natural Development and Use of Lake Sevan Ecosystem"	The Government of the RA, 1187-N, September 28, 2017	This decision defines the annual (for 2018) program for restoration, protection, reproduction, natural development and utilization of Lake Sevan ecosystems.

✓ **Institutional framework relevant for the water sector**

No:	Name of Institution:	Legislative act and data of establishment:	Governance applies to
1	Presidential Commission on Lake Sevan Issues:	K-234-N 25.12.2008	" The Lake Sevan Issues Commission " was established to take responsible decisions aimed at preserve, restore and use water resources of Lake Sevan and its catchment basin, to submit proposals on the natural development of fauna, flora and ecological sub-systems.
2	Water Resources Management Agency: of Ministry of Nature Protection of RA:	N 82: 30.01.2002	The Water Resources Management Agency under the Ministry of Nature Protection is responsible for implementing the foreign water resources management and protection functionalities (for both surface water and groundwater) under the Water Code of RA (2002). This includes providing water availability and use estimates, water use regulation and allocation, issuing water use permits, monitoring, developing river basin management plans, ensuring that environmental needs for water are being met, and classifying water bodies.
3	Sevan Basin Management Office of the WRMA of Ministry of Nature Protection RA:	2010	Sevan Basin management office (BMO) was established for implementation decentralized Integrated River basin management. BMO authorized for Water Resources Management in Sevan Basin including provision of water use permits, water resources protection based on integrated river basin management principles, defines water resources management authorities.
4	Bioresources Management Agency of Ministry of Nature Protection RA:	1236-N 8.08.2002	The Bioresources Management Agency of the Ministry of Nature Protection is the state authorized body to run the Flora and Fauna Cadasters as well as the Cadastre on Protected Areas. However, those cadasters are established on the paper only, no technical tools / information systems exist due to lack of allocations from the State budget.
5	State Committee on Water Systems:	N 92: 09.02.2001	The State Committee of Water Economy was created in the year 2001 (by the Government of the RA decree N 92 as of February 9,

	(SCWS)		<p>2001 "About Reforms on water economy management system" N 92 decree point 2).</p> <p>By the Government decree N 1653 as of October 17, 2002, the Committee was recognized as an authorized body for water system management foreseen by the Water Code of the RA.</p> <p>Since the year 2005 (Government decree N633, as of May 19, 2005) the State Committee of Water Economy is operating under RA Ministry of Territorial Administration as a state body of management sector of the ministry.</p> <p>The objectives and issues of the Committee are:</p> <p>a) provision of management and safe use for state-owned water and non-competitive water supply systems;</p> <p>b) provision of the National Water Program within the frameworks of its eligibility;</p> <p>c) development and implementation of investment policy on water systems, as well as the organization of investment project assessment.</p>
6	Ministry of Agriculture		The Ministry of Agriculture of the Republic of Armenia is a republican body which develops and implements projects relating to the spheres of agriculture, intergovernmental cooperation in the field of agriculture, forestry, plant-growing, cattle-raising, irrigation, and projects increasing the productivity of the soil usage.
7	Ministry of Health		The Ministry of Health of the Republic of Armenia is a state body, which develops and implements the policy of the Government of the Republic of Armenia in the field of healthcare, including problems of ensuring the quality of drinking water and other natural resources.
8	Gegharkunik Regional Administration (Marzpetaran)		The Marzpetaran implements the external territorial policy and coordinates the activities of the territorial bodies of the republican executive bodies.
9	Experts Commission on Lake Sevan Conservation (Academy of Sciences of the Republic of Armenia)	HO-190 04.07.2001	The Expert Committee for the protection of Lake Sevan was established for independent and professional expertise of the documents developed by the State Authorized Bodies and Annual Programs (Reports), as well as the Authorized Bodies responsible for their implementation. The Expert Committee is in the structure of the National Academy of Sciences of the Republic of Armenia.
10	Sevan National Park State Non-commercial organization:	Decree N 125 of Central Committee of the Communist Party of Armenian SSR and Board of Ministers in March 14, 1978.	Sevan National Park SNCO implements the conservation of natural ecosystems, landscape varieties and biodiversity, scientific research of natural heritage, protection, regeneration, recovery, inventory, observation and the utilization of natural resources. It is a non-profit ecological scientific-research and cognitive organization and has a status of Legal Person who operates according to the constitution of RA, the law on "Special Protected Areas" and the law on "State Non-Commercial Organizations" and to the charter of SNCO "Sevan" National Park and other legal acts. According to the law of RA on "Lake Sevan" the territory of national park was entirely included in the Central Zone of Sevan ecosystem and is defined as a special object for regulation of town building activities.

## Annex 18: LDN indicator mapping results and feasibility analysis for Outcome 1

*(Excerpt from the LDN mapping report)*

### SDG 15.3.1 Sub-indicators and the Good Practice Guidance (GAP)

Following recommendations from the UNCCD to stabilize or reduce the extent of degraded land within national territories, the Good Practice guidance<sup>61</sup> promotes the use of the SDG 15.3.1 sub-indicators as means to measure and monitor compliance with voluntary LDN national targets. These sub-indicators are Land Cover Change, Land Productivity and Soil Organic Carbon (SOC; seen as a proxy for carbon stocks above and below ground).

Definitions for Land Cover classes under the UNCCD guidelines fall under 7 simplified classes, being “Tree (covered), Grassland, Cropland, Wetland, Artificial land, Other land, Waterbody”. Measurement is typically done using one of the available land cover data sets and recategorizing the results based on the UNCCD Land Cover definitions. Land Productivity typically relies on estimates and trends of Net Primary Productivity (NPP) to locate areas of ecological disequilibrium. SOC measurements cover the upper 30cm of the soil though the methods as proposed in the GPG have produced debatable results and failed to show trends when applied under different global scenarios. Other remote sensing methods and databases were used in the development of this report, and their mapping methods are briefly introduced for subsequent mapping or analysis during project implementation.

Following remote sensing analysis, the sub-indicators are calculated independently for individual land areas, sub-dividing the results into 3 categories of “degraded, stable, improving”. If one of the 3 sub-indicators gives “degraded” as a result, the entire area is to be considered as degraded under the GPG’s one-out-all-out (1OAO) principle. Given recent concerns surrounding the Good Practice Guidance(GPG) application of the “one-out-all-out (1OAO) approach, in which an area is identified as degraded if any one or more of the sub-indicators shows degradation”, in addition to continued issues with false positives, a recent publication<sup>62</sup> by the authors of the GAP guidelines has outlined an interpretation matrix to better adapt the definition of LD to local contexts. This will be a subsequent and necessary step in order to interpret the results and create an LD monitoring system for the RA.

The LDN conceptual framework developed by Orr. et al (2017) has indicated the need for validation of the results and incorporation of local knowledge to offset remote sensing errors and ensure local objectives and needs are considered before basing decisions on the sub-indicator mapping results. To comply with these recommendations there are several approaches for ground truthing. A LADA-based approach (FAO) could be employed to assess data on LD rates and extent as well as stakeholder feedback and engagement to reduce degraded areas and improve ecosystem services.

### National context and Status of Land Degradation (LD) and land use planning in Armenia

After gaining independence from the former Soviet Union, a very difficult socio-economic situation has developed in Armenia. The high cost of energy resources forces the population to intensively use forest resources as a source of energy. Due to the destruction of infrastructure, livestock mainly used pastures near settlements, which led to their degradation as a result of overgrazing, and remote pastures vegetative composition changed as a result of the lack of sufficient pasture load. Errors during land privatization have led to the fact that significant areas of arable land are not used for their intended purpose, the lack of proper agricultural technology and scientifically based zoning of crops leads to land degradation. The intensive development of the mining industry leads to the degradation of large areas occupied by both open pits and tailings. In recent years, the Government of Armenia has been making certain attempts to correct the existing situation, making the necessary decisions, attracting the help of various international organizations, and implementing international projects. But in general, the situation with land degradation is still quite difficult and complicated.

In the “National Strategy and Action Program to Combat Desertification in the Republic of Armenia” (2015) desertification factors are divided into two groups: natural and anthropogenic. Natural factors include droughts

<sup>61</sup><https://www.sciencedirect.com/science/article/abs/pii/S1462901118305768>

<sup>62</sup> Sims et al. 2020, A land degradation interpretation matrix for reporting on UN SDG indicator 15.3.1 and land degradation neutrality, Environmental Science & Policy, Volume 114, December 2020, Pages 1-6



that are frequent at Ararat valley and some areas of VayotsDzor and Syunik Marzes; Sandstorms are frequently observed in Ararat valley, VayotsDzor and Syunik Marzes; Moisture deficit caused by unequal distribution of seasonal and regional rainfall; Geomorphological features; Landslide processes; Floods; Naturally occurring salinization. Anthropogenic factors include Urban development; Agriculture practices related to the violation of ploughing rules, absence or inappropriate application of crop rotation techniques, ineffective use of irrigation water and nutrients, overgrazing of pastures; Road construction; Illegal logging; Mining, especially with open-pit method; Abuse of artesian water resources; Soil contamination.

Critical processes are rather intensive in Armenia. According to the Government of Armenia<sup>63</sup>, **water erosion** at various stages is listed on nearly half of all forestlands in all forest regions of Armenia (186,200 ha). Likewise, it is registered in almost half of all croplands in all regions of the country (220,000 ha), except orchards and vineyards. **Wind erosion** is observed on small cropland areas in the Ararat plain (22,000 ha). The total area of eroded land by wind erosion has increased between 2000-2010 by 20,000 ha. **Artificialized land** has also increased by 27,230 has and now represents about 3.5% of the total area of Armenia.

**Chemical pollution** is registered on 272,000 ha, polluted by minerals on 300,200 ha, with most of the land contaminated by mineral substances used in agriculture, and by chemicals - in urban areas. Biocides pollution is expressed slightly (4,700 ha). Area of chemical contamination has practically not increased, due to the fact that in recent years the chemical industry in Armenia has collapsed. Pollution by minerals has increased due to the relatively low cost and incorrect application of chemical fertilizers, especially nitrate. Increasing the area of contaminated land takes place in all rural areas of the country.

The process of **acidification** is not intensified in Armenia and is mainly associated with natural soil properties. **Salinization** has especially intensified in recent years. Particularly secondary salinization occurs at the Ararat valley, where artesian water is abundantly used for irrigation. Currently, the area of secondary salinization has reached 27,000 ha. Improper use of agricultural machinery with improper irrigation methods led to the appearance of **soil compaction** processes on vast areas - almost half of all agricultural land is currently in various stages of compaction. These areas are slowly but steadily increasing (in the Ararat valley during the period 2000-2010 there was an increase in the area 2,000 ha). Areas prone to **overgrazing** have not increased in recent years, but the consequences of overgrazing in the past have not been eliminated, and such land is now up about 170,000 hectares. According to the national experts **under grazing of pastures** - in particular in proximity to remote villages – is also present on about 20,000 ha. The processes of **deforestation** in recent years have practically stopped, on the contrary, and in the future, it is planned reforestation and afforestation of non-forest areas in the area of at least 200-300 ha per year until 2030. In 2005 the Government of Armenia had a Decision according to which the forest cover of Armenia has to be enlarged till 20.1% of the whole territory of the Republic. As well in 2019 it was decision that 10 Mln trees has to be planted in Armenia for 1 year (implementation of this decision was postponed because of Covid19 pandemic). So, on our counts till 2030 it has to be afforested and reforested 8.500 has per year. This figure is very ambiguous, and in any case first of all there must be works on planning these activities – scientific investigations and science-based proposal on areas, which will be afforested, on the assortment of trees and shrubs for different regions and altitudinal zones, on enlargement of nurseries and seed stations to supply ambitious targets, on availability of native seed stock and genetic diversity, etc.

### **Status of Land use Planning in Armenia**

Land use planning in Armenia is practically absent at the national or regional levels. There is no central or integrated planning and there are no specialized organizations and institutions dealing with these issues. At the local level, with the involvement of state institutions, only issues related to land use change are handled (for example, changing the status of agricultural land to industrial land, etc.). In some regions, attempts were made to landscape planning, but the process did not go beyond the development of plans, the plans were not put into practice. The reasons for this may be the underdevelopment of the legal framework, the lack of analysis of use and the lack of desire to change anything in the use of land.

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<sup>63</sup> As presented in the LDN report of Armenia

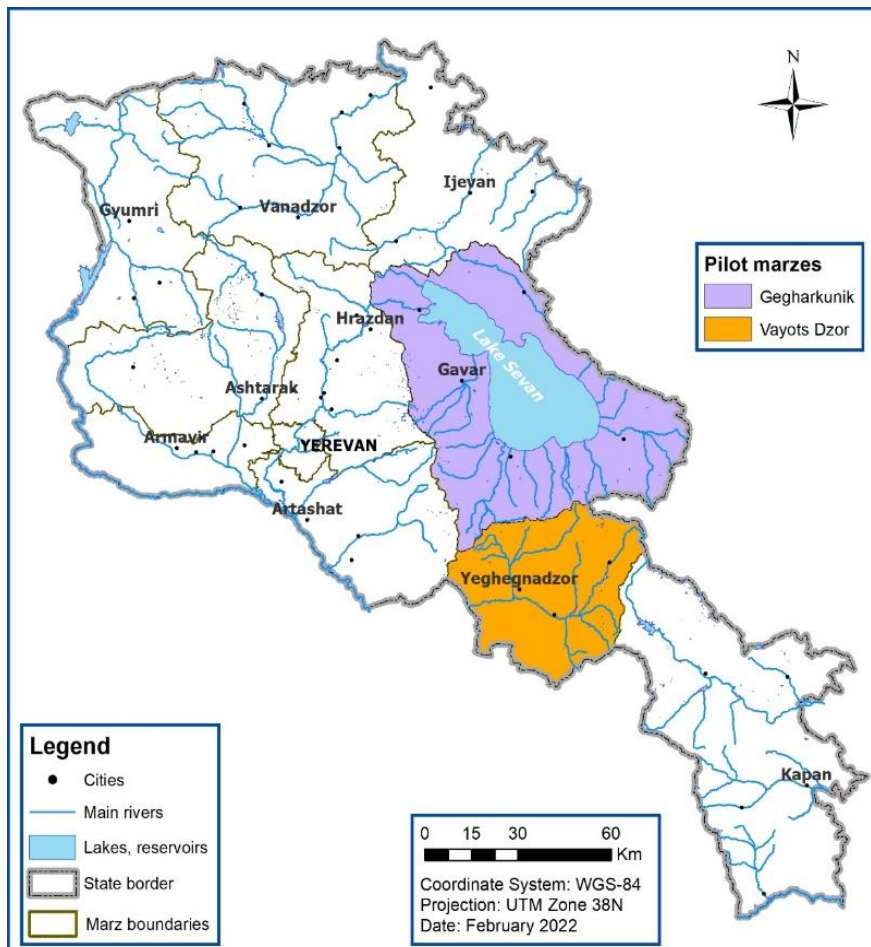
### National barriers to LDN and Integrated Spatial Land Use Planning (ISLUP)

Stakeholder consultations and literary reviews have shown that following barriers could be obstacles for achieving LD neutrality and ISLUP:

- Lack of system-thinking and holistic approaches to land management: a landscape-scale conceptual context for testing, introducing and adapting land management options within a larger economic and ecological plan currently does not exist, leaving decisions to be made based on immediate, individual needs and short-term economic gains; this is especially so for commonly managed resources, such as pastures, forests or water;
- Outdated policy and LD approaches: Many of the policy documents and programmes were developed in 2004 and 2005 and fail to reflect current understanding and approaches to LD, including principles outlined in the LDN conceptual framework;
- Lack of financing and investment at national and sub-national levels to enforce or develop RA programmes and policies. For example, RA legislation requires the development of Forest Management Plans (FMP) for local forest user groups or community-based organization, “concessional management” to oversee and benefit from improved NRM: most of these approaches and modalities were created under international projects and grants were never introduced or failed after project support was withdrawn.
- Lack of State or sub-national budgeting and funding specifically targeting LD mitigation or land restoration works. National institutions are understaffed, underbudgeted or non-existent in key areas. Local community governments also lack capacity to generate or adequately invest funds to increase livelihoods and opportunities. Currently, the majority of funds for LD or environmental conservation activities come from international projects and grants. Lack of funding is also an issue when considering capacity building and development of the RoA national and sub-national LDN monitoring systems and autochthonous responses to LD issues, once the project has concluded.
- Lack of real-time data on the condition of land and state of natural resources: data discrepancies are common and fail to capture on ground realities. Lack of unified, national data protocols and datasets also fail to show national and regional trends and thresholds within different land cover types and landscape areas;
- Lack of financial planning mechanisms with rural farmers to break sustenance farming focus. Financial management and planning at this scale limits project impact and capacity to meet objectives;
- Limited farm size and capacity to improve upon productive efficiency: Farms are usually small and fragmented, amounting to an average of 1.4 hectares per unit. When financial capacity or services are available, scaling of operations are limited by land size restraints;
- Risk aversion to change within rural communities. Given that agriculture has always had high associated risks, producers often go to great lengths to reduce risks and over time become risk averse. Even when producers are aware of how their land management practices impacts natural resources, often the perceived risk of changing their practice is considered too high. Convincing them to change long-term practices can prove a significant barrier to the introduction of SLM or other innovations, especially among older generations.
- Need for improved planning and transition of abandoned agricultural lands into either native landscapes or agriculturally productive systems that provide adequate returns on investment. Cropland abandonment and uncontrolled succession often processes lead to the establishment of woody weeds and invasive species. This increases costs for returning land to a cultivatable state and does not provide adequate forage for livestock;
- Need for more stream-lined administrative approach for LD and LDN investment: Of special importance is the bureaucratic delays and problems that have plagued projects in the past and led to disillusionment among rural participant communities. Stakeholders have been especially vocal about these problems. This barrier is further complicated by current pandemic situation and poses a risk to project success.
- Lack of low-cost, effective reforestation method to address the LDN target of 20% national forest cover. The need to successfully reforest 8,500 ha per year until 2030 to meet the RA endorsed 20%target will require techniques that not only meet germination and survival rates for new forest but does so in a cost-effective manner over different ecological contexts. Most reforestation campaigns also depend on a limited number of species and can lead to reduced biodiversity and increased disease under CC due to lack of genetic diversity of forest stands;
- Absence of special governmental institution or organization for Integrated and Spatial land use planning: stakeholders can ask governmental bodies for permission to change land use category and State Cadastre will fix it. There is no of systems-thinking and holistic approaches to land management on governmental level;
- On ground, in government of marzes there is lack of specialists, technical knowledge, and even rights to force ISLUP in the marzes.

Areas of intervention: Gegharkunik and Vayots Dzor regions (marzes)

**Fig. 1. Gegharkunik and Vayots Dzor targeted regions**



***Gegharkunik Marz*** - covers an area of 5,352 square kilometres, or 18.0% of total area of the RA and is located in east reaches of the country, surrounding Sevan Lake and bordering with Azerbaijan. It is a mountainous region comprised over 5 principal mountain ridges, with the highest point being Mount Azhdahak at 3597 (Gegham range) meters and the lowest point (1 325 m) found in the canyon of Getik river (Dzoravank village) on the border with Tavush marz. The climate for the Gegharkuniq marz is warm humid continental with average temperature 5.2°C, and annual precipitation 1015 mm (Köppen-Geiger Dfb&Dfc). Lake Sevan is the largest lake of Armenia (1 279.46 km<sup>2</sup>, the height above sea-

level is 1 900.60 m). It is the largest pool of fresh water of the Southern Caucasus. The lake has vital influence not only on balance of environment protection but on economy of the whole marz as well. The 2021 census puts the total population for the GegharkuniqMarz at 227,300, or 7.7% of the total country population, of which 70.1% are rural. Agricultural production from the region represents between 11.9% of total agricultural product of the RA and employs roughly 55 400 people who live in the Marz (Armstat). Principal crops include grains, potato and other vegetables. Extensive cattle- and sheep-farming for meat and milk production is the principal livestock related activity though most of the smaller farms and HH also maintain a small number of milking animals and poultry for daily household consumption. The area’s history of human settlement and intensification of agriculture has simplified and fragmented the original ecosystems, which today provides for a mosaic of crops, urban centres, grasslands, artificial wood plantation mainly around the Lake Sevan, and small patches of forests and arid juniper open forests.

LD occurs in the Gegharkuniq Marz both under industrial (mining), agricultural and ‘more natural’ environments due to natural and anthropogenous causes. The steep terrain leads to both natural and human-induced erosion processes, and landslides and flooding are recurrent, overgrazing leads to pastures’ erosion and change in floristic compositions, etc. The Land Cover classes defined by the GA are presented in Table 1, together with their total area and the percentage of each class’s degradation at the regional level.

**Table 1. Land Cover Classes, their extent and percentage of degradation according to official statistics.**

LAND COVER CLASS	TOTAL Ha.	% OF TOTAL AREA
Arable land	81,453.6	15.2
Perennial plantations	104.4	0.02
Hay fields	35,657.3	6.7
Pastures	181,610.1	33.9
Urban land	21,568.6	4.0
Industry, transport, energy e.a. land	5,531.3	1.0
Specially protected nature area	148,590.7	27.8
Forest land	11,981.0	2.2
Water land	1,320.6	0.24
Storage land	620.0	0.11
Special purpose lands	259.6	0.05
Other	46,434.6	8.7
Total	535,131.8	100

**Vayots Dzor Marz** - covers an area of 2,310 square kilometers, or 7.8% of total area of the RA and is located in south reaches of the country, borders with Nakhijevan, Gegharkunik marz, Syunik and Ararat marz, and to Artsakh. Vayots Dzor is surrounded by high mountains, water-separated mountain ranges, which were the original natural banks between the region and its neighboring territories. It is a mountainous region comprised of 3 principal mountain ridges, with the highest points being Mount Vardenis at 3522 (Vardenis range) meters, Mount Sartsali (Vardenis range) at 3433 meters and Mount Gogi (Vayk range) at 3113 meters; and the lowest point (970 m) found in the canyon of Arpa River (Areni village) on the border with Nakhidjevan. The climate of the Vayots Dzor marz is very different depending on altitude and geographical location, it varies from Hot humid continental and Warm humid continental to Cold semi-arid (Köppen-Geiger Dfb&Dfc). The highest possible air temperature reaches +41°C in southern districts, and the exceptional minimum temperature reaches -35°C. Precipitations comprise 300-800 mm. The 2021 census puts the total population for the Vayots Dzor marz at 48,100, or 1.6% of the total country population, of which 65.1% are rural. Agricultural production from the region represents between 2.6% of total agricultural product of the RA. Principal crops include fruits and grape, grains, and vegetables. Extensive cattle- and sheep-farming for meat and milk production is the principal livestock related activity though most of the smaller farms maintain a small number of milking animals and poultry for daily household consumption.

The area's history of human settlement and intensification of agriculture has simplified and fragmented the original ecosystems, which today provides for a mosaic of crops, urban centres, grasslands, and forests 13,240.1 ha (5.7%) and arid open forests. LD occurs in the Vayots Dzor marz both under industrial (mining), agricultural and 'more natural' environments due to natural and anthropic causes. The steep terrain leads to both natural and human-induced erosion processes, and landslides and flooding are recurrent, overgrazing leads to pastures' erosion and change in floristic compositions, etc. The Land Cover classes defined by the GA are presented in Table 2, together with their total area and the percentage of each class's degradation at the regional level.

**Table 2:** Land Cover Classes, their extent and percentage of degradation according to official statistics.

LAND COVER CLASS	TOTAL Ha.	% OF TOTAL AREA
Arable land	15,787.7	6.8
Perennial plantations	2,029.1	0.87
Hay fields	5,058.1	2.2
Pastures	92,204.8	39.9
Urban land	5,058.2	2.2
Industry, transport, energy e.a. land	3,485.1	1.5
Specially protected nature area	18,169.6	7.9
Forest land	13,687.6	5.9
Water land	1,026.0	0.44
Storage land	0	0
Special purpose lands	29.8	0.01
Other	74,477.1	32.2
Total	231,013.0	100

Mapping Results using remote Sensing of selected indicators

**Table 3.** Summary of map scale, type and description

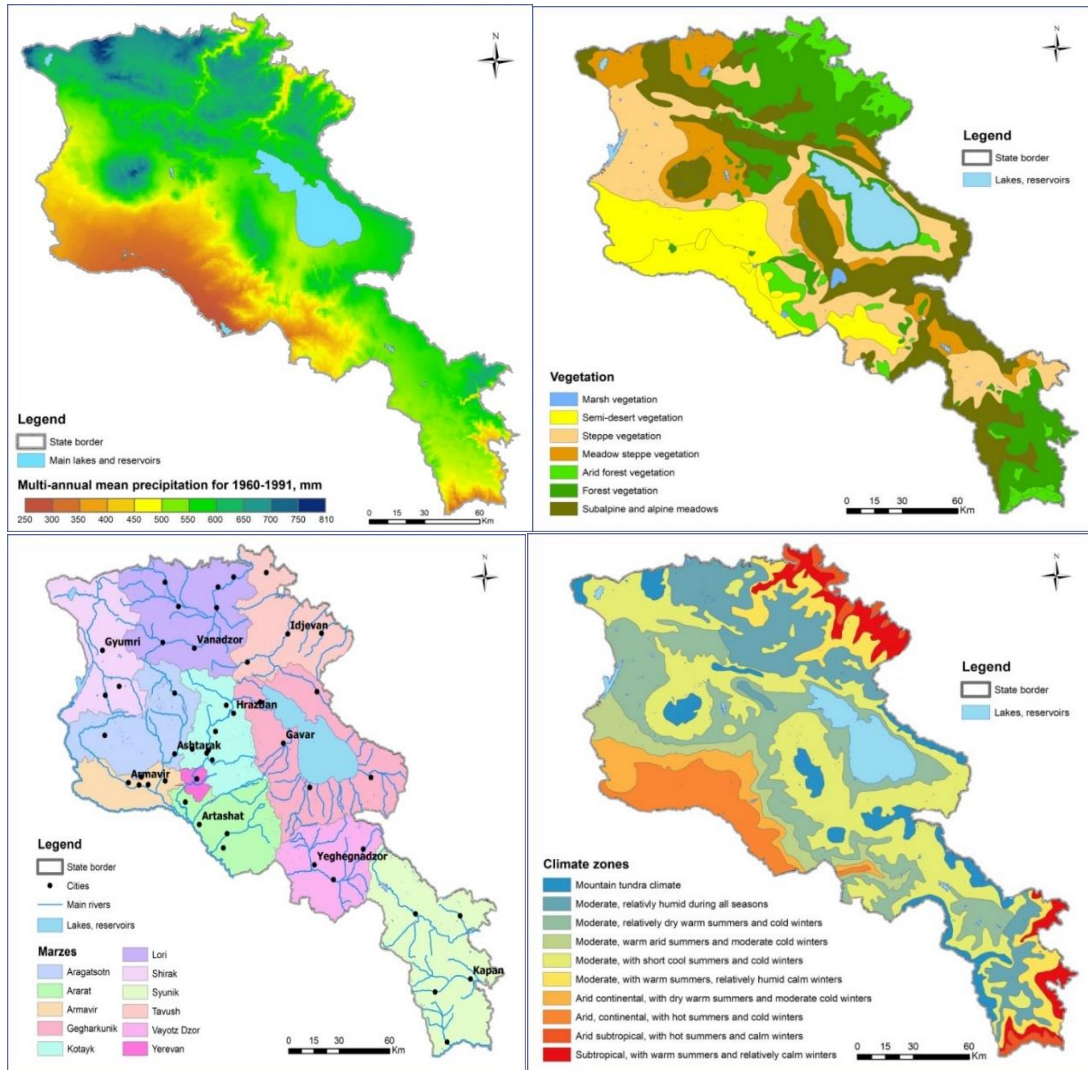
INDICATOR SET	MAP TYPE	DESCRIPTION
National Context	National map showing selected Marzes	The map shows national boundary of Armenia and administrative boundaries of the first level (Marzes)
	Any other national maps...ecoregions, principal water sources, etc.	Two maps were constructing to include the administrative division of Gegharkuniq and VayotsDzorMarzes at community level. In addition, two maps of vegetation zones and climate zones of Armenia were constructed based on the National Atlas of Armenia (2011)
Land Cover	National Land Cover Map using ESA sources	The map shows ESA Global Thematic Land Cover Classes for the year 2015 using data from 5 different satellite missions at a resolution of 300m.
	National Land Cover Map using UNCCD definitions	The 37 ESA land cover categories were reclassified using the standard IPCC and UNCCD reclassification criteria (Trends.Earth) to produce a map of the main Land Cover categories for 2015
Land Productivity	Land Productivity under different models and temporal resolutions	With the objective of comparing different methodologies for characterizing land productivity trends, the following alternative methods were used based on NDVI band of MODIS 16-Day Global 250mimage: <ul style="list-style-type: none"> <li>• LTT: Long-Term Trend for the NDVI Annual Mean;</li> <li>• LTT: Long-Term Trend for the NDVI Annual Ecosystem Services Productivity Index (ESPI);</li> <li>• SWATI: Step-Wise Approach Trend Indexfor the NDVI Annual Mean;</li> <li>• SWATI: Step-Wise Approach Trend Indexfor the NDVI Annual Ecosystem Services Productivity Index (ESPI);</li> </ul>

INDICATOR SET	MAP TYPE	DESCRIPTION
		<ul style="list-style-type: none"> <li>SSWATI: Slope Step-Wise Approach Trend Index for the NDVI Annual Mean</li> <li>SSWATI: Slope Step-Wise Approach Trend Index for the NDVI Annual Ecosystem Services Productivity Index (ESPI)</li> </ul>
	National Land Productivity Consensus Map	A map of NDVI mean for the period of 2000-2018 was constructed based on NDVI band of MODIS 16-Day Global 250 m image
	National Land Productivity Trends.Earth Map	Two maps on land productivity dynamics were constructed using FAO's Joint Research Commission (JRC) simplified model and the Trends.Earth tool ( <a href="http://trends.earth">http://trends.earth</a> ) promoted by the UNCCD as a QGIS plug-in that allow users to simple compute SDG 15.3.1 indicator with a number of options and data sources.
Soil Organic Carbon	Soil Organic Carbon Map (tons/ha for year 2018).	A map onSOC inventory was constructed for the year 2018 using UNCCD guidelines
	Soil Organic Carbon degradation/trends Map	A map on Soil Organic Carbon degradation/trends for the period of 2001-2018 was constructed using UNCCD guidelines
Climate Trends	Precipitation trends for last 20 years map	A map on total annual precipitation for the period of 1960-1991 was constructed using WorldClim V1
	Precipitation trends for the period of 1999-2019	Three maps on precipitation trends for the period of 1999-2019 were constructed using: <ul style="list-style-type: none"> <li>CHIRPS precipitation trend: Climate Hazards Group InfraRed Precipitation with Station Data (version 2.0 final)</li> <li>PERSIANN-CDR: Precipitation Estimation from Remotely Sensed Information Using Artificial Neural Networks-Climate Data Record</li> <li>TRMM precipitation trend: this dataset algorithmically merges microwave data from multiple satellites, including SSM/I, SSMIS, MHS, AMSU-B and AMSR-E, each inter-calibrated to the TRMM Combined Instrument</li> </ul>
Land Degradation	Land degradation map	A map on land degradation trend was constructed through aggregation of classes from the maps produced by Trends.Earth
	National Fire Map for 2019	A map on fire incidence in 2019 for Armenia was constructed using FIRMS dataset
	National Fire 5-year frequency Maps	A map on fire frequency for the period of 2014-2019 for Armenia was constructed using FIRMS dataset
Gegharkuniq region/marz	Gegharkuniq marz map LD trends and community boundaries	Gegharkuniq marz map showing selected community boundaries, regional Land Degradation Trends with project pilot communities highlighted.
	Community map showing community boundaries and LD trends	District map showing linkages between LD and UNCCD land cover classes
Vayots Dzor region/marz	Vayots Dzor marz map LD trends and community boundaries	Vayots Dzor marz map showing selected community boundaries, regional Land Degradation Trends with project pilot communities highlighted.
	Community map showing community boundaries and LD trends	District map showing linkages between LD and UNCCD land cover classes



## LDN Indicators Mapping results at National level

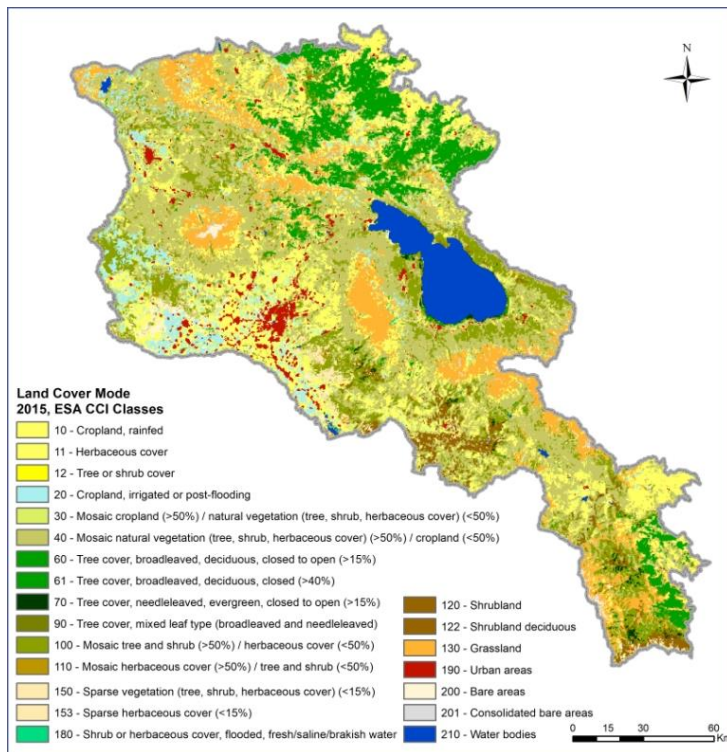
The following maps present a basic overview of the administrative, climatic and vegetation divisions that exist at a National scale. They provide a general context for reviewing the subsequent national scale maps. Among this mapping set are the maps showing administrative boundaries, climate zones and vegetation cover:



**Fig 2.** Administrative Division and Climate Zones in Armenia, Vegetation Cover of Armenia and Precipitation Trends for the period of 2000 to 2019

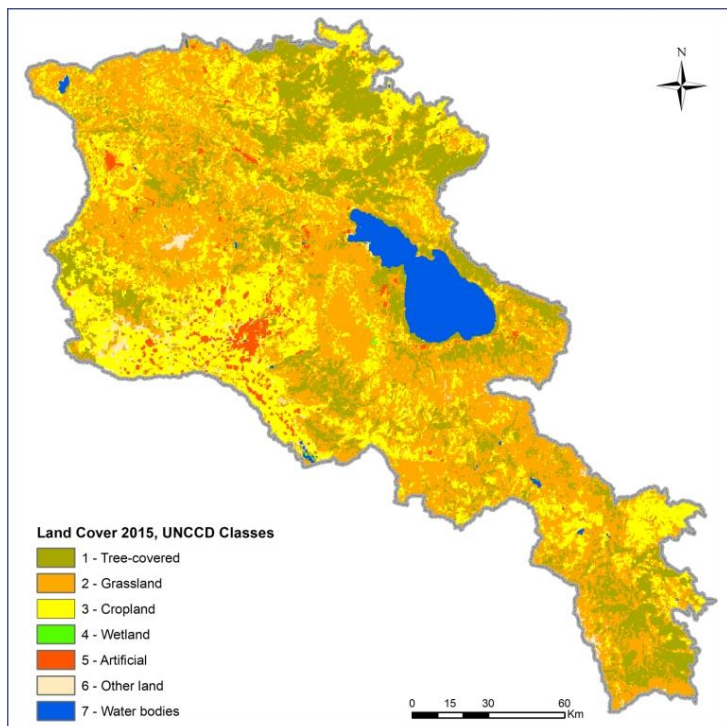
### Land Cover

Figure 3 shows the ESA Global Thematic Land Cover Classes for the year 2015. This map series was produced annually between 1992 and 2018 using data from 5 different satellite missions at a resolution of 300m. Land cover is defined as the physical material at the surface of the earth. Land covers include grass, trees, bare ground, water, etc. Total 37 classes were defined, including a wide range of land cover classes that clearly shows the thresholds between the different climate zones of Armenia and the effects that altitude plays in determining climate and subsequent land cover type. The map is also provided to show the contrast with the UNCCD definitions of Land Cover under the GPG mapping protocols.



**Fig 3.** Land Cover according to ESA data sources (FAO 2020)

Then the 37 ESA categories were recategorized using the standard IPCC and UNCCD reclassification criteria (Trends.Earth) to produce a map of the main Land Cover categories (Figure 4).



**Fig. 4.** Land Cover classes following definitions from UNCCD (FAO 2020)

To better understand the distribution of land classes in each individual marz, a table has been provided below. The Land cover statistics for Gegharkunik and Vayots Dzor marzes are high-lighted in yellow given they are the focal point for project activities.



**Table 4.** Distribution of UNCCD Land Cover classification results by marz (ha) for the RA.

MARZES	TREE	GRASSLAND	CROPLAND	WETLAND	ARTIFICIAL	OTHER	WATER
VayotsDzor	30,876	150,681	47,893	0	831	1,194	245
Tavush	119,632	64,938	85,542	0	1,741	184	485
Syunik	115,007	232,580	93,448	0	402	6,835	1,596
Shirak	26,619	161,645	69,334	11	6,254	1,585	2,477
Lori	99,485	182,422	92,254	0	5,306	647	262
Kotayk	20,281	101,008	78,027	0	8,810	1,071	100
Gegharkunik	95,976	240,096	61,194	870	5,189	1,557	126,076
Armavir	6,784	11,399	80,845	78	10,712	12,894	156
Ararat	41,014	80,504	72,180	273	9,970	3,465	1,428
Aragatsotn	46,822	128,749	86,809	0	5,646	6,963	245
Yerevan	586	2,466	5,747	0	11,689	1,663	50
<b>TOTAL</b>	<b>603,082</b>	<b>1,356,488</b>	<b>773,274</b>	<b>1,233</b>	<b>66,550</b>	<b>38,057</b>	<b>133,123</b>

These results can be then compared with the officially recognized Land Use classifications and their extent as seen in Table 4 below.

**Table 5. Official Land use classes of the Republic of Armenia**

LAND COVER CLASS	TOTAL Ha.	% OF TOTAL AREA
Arable land	445,600	14.98%
Perennial plantations	35,300	1.19%
Hay fields	121,100	4.07%
Pastures	1,051,600	35.36%
Urban land	151,900	5.11%
Industry, transport, energy e.a. land	51,400	1.73%
Specially protected nature area	335,600	11.28%
Forest land	334,000	11.23%
Water land	25,800	0.87%
Storage land	600	0.02%
Other	421,500	14.17%
<b>Total</b>	<b>2,974,400</b>	<b>100%</b>

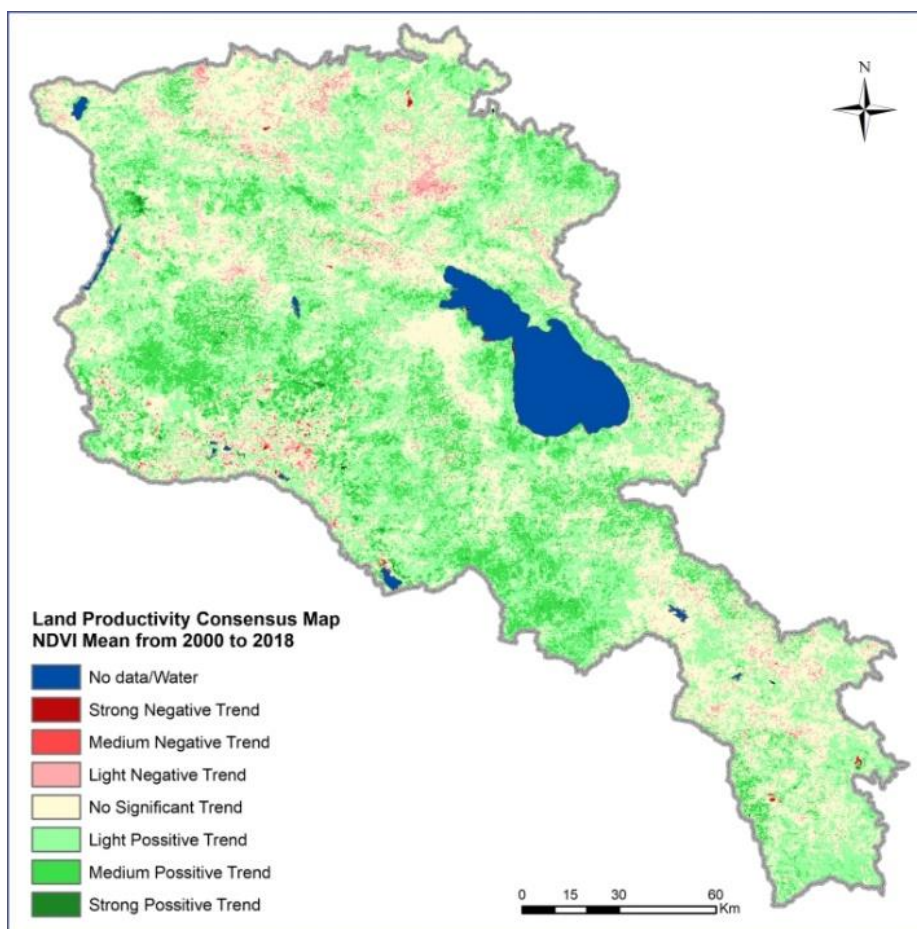
Land Cover change has been found to be an indicator of human disturbance and Land Degradation as defined by the UNCCD. In recent conversations with practitioners, LDN approaches in Uruguay, Georgia and Angola have provided evidence of its importance as a lead indicator for locating human caused impact through remote sensing activities. However, such has not been the case in some other countries like Argentina, Turkey and Kyrgyzstan in Central Asia where land cover has remained stable for the last two decades. In these cases, other indicators proved more relevant to detect changes in those stable covers, including Land Productivity which typically presents more variability as a spatial indicator. While land cover change does not appear to be extensive considering the time of exposure the map presents, it is widespread. The types of change from one land cover class to another is discussed below in the target community sections.

### Land Productivity

Land Productivity (LP) is most often the most variable both in time and space of the 3 SDG 15.3.1 indicators, and therefore can have a pronounced effect on the classification of “degraded/not-degraded” mapping results. Complications can also arise when considering differences in LP given the effects that livestock or land management practices can have on short and long terms trends in both potential and real biomass growth.<sup>64</sup> Optimal ecological expression, such as that described by the ‘Land Potential’ which is promoted by LDN, is difficult to measure when management practices reset or prevent succession. Variation can also be seen in how indicators or datasets are processed and can lead to important differences in mapping results. Nonetheless, LD is a vital indicator and allows for long-term trends to become apparent, even under seasonal variations.

The following map below (Figure 5) shows a consensus map (FAO 2020) representing an agreement between different models of Land Productivity trend, reconciling different trend models (some not sensitive to seasonality, whereas others sensitive to even small changes in low NDVI areas).

**Fig 5.** Land Productivity Consensus Map (FAO 2020)

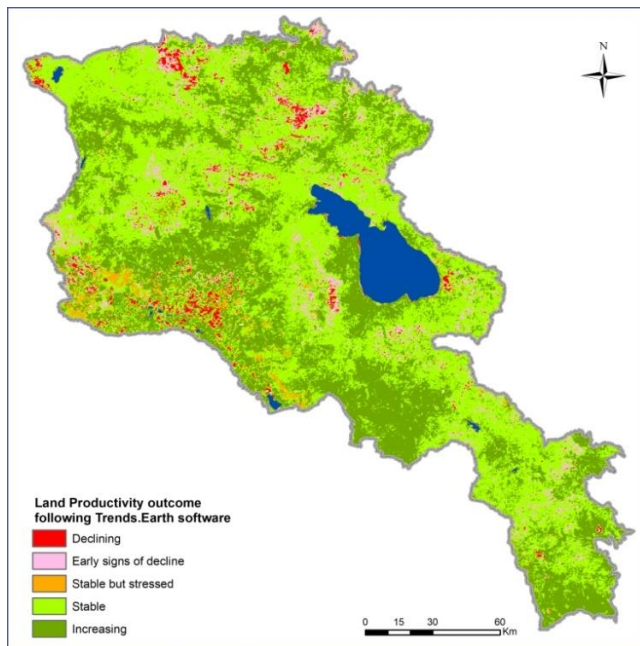


The consensus map results show areas of concern, or hotspot areas of negative trends, in the marzes of Lori, Tavush, Ararat and Syunik. At the same time, increases in LP are apparent in Kotayk, VayotsDzor and Aragatsotn, as well as being present in all Marzes. Other Land Productivity Dynamic models are also available. Perhaps the most widely recognized model is the one produced by the Trends.Earth tool (<http://trends.earth>) of Conservation International. This tool is promoted by the UNCCD as a QGIS plug-in that allow users to simple compute SDG 15.3.1 indicator with a number of options and data sources.

Using also the Default Trends.Earth approach on the same MODIS data to 2019 as before a different map can be produced (Figure 6).

<sup>64</sup> (Wessels et al. 2008 and Teich et al. 2019)

**Fig. 6** Land Productivity outcome using Trends.Earth (FAO 2020)

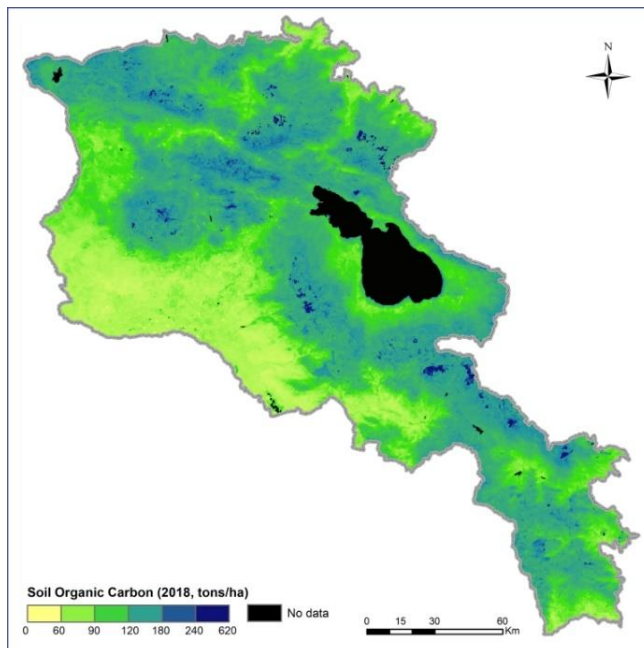


The Trends.Earth approach correlates well with the other models and consensus map.

### **Soil Organic Carbon**

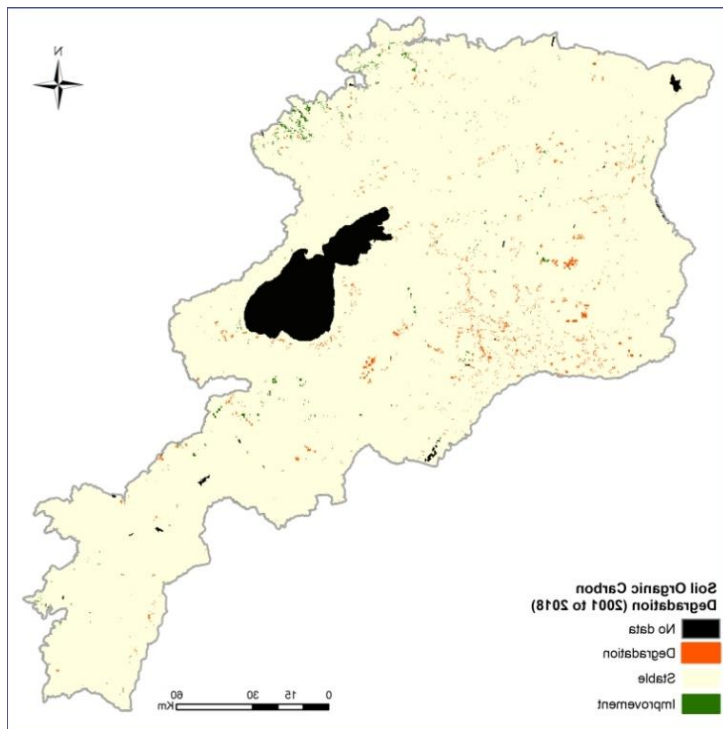
As one of the 3 indicator components of the SDG 15.3.1 and given its importance in ecological pathways, Soil Organic Carbon (SOC) was considered as a lead indicator. Results for SOC mapping under the UNCCD guidelines can be seen in Figure 7 below:

**Fig. 7.** Soil Organic Carbon rates for the RA under UNCCD guidelines (FAO 2020).



The results show increased SOC at cooler, higher altitudes and in those areas of higher precipitation, as is to be expected. When SOC trends were mapped for the period 2001 to 2018, some areas of negative and positive trends were observed, but overall show stability according to these mapping results (Figure 8).

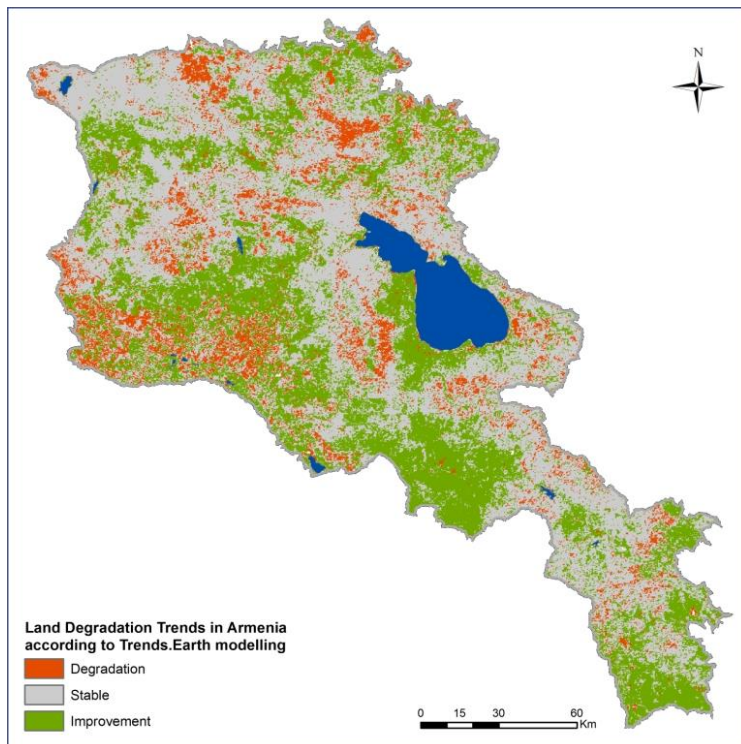
**Fig. 8.** Soil Organic Carbon trends for the RA under UNCCD guidelines (FAO 2020).



### **Land Degradation**

The aggregation of classes from the previous maps produced by Trends.Earth are the most direct method to calculate SDG 15.3.1 indicator: “Percentage of Degraded Land”.

**Fig.9.** Land Degradation under Trends.Earth modelling (FAO 2020)



The Table below presents the distribution of degraded land across the regions (marzes):

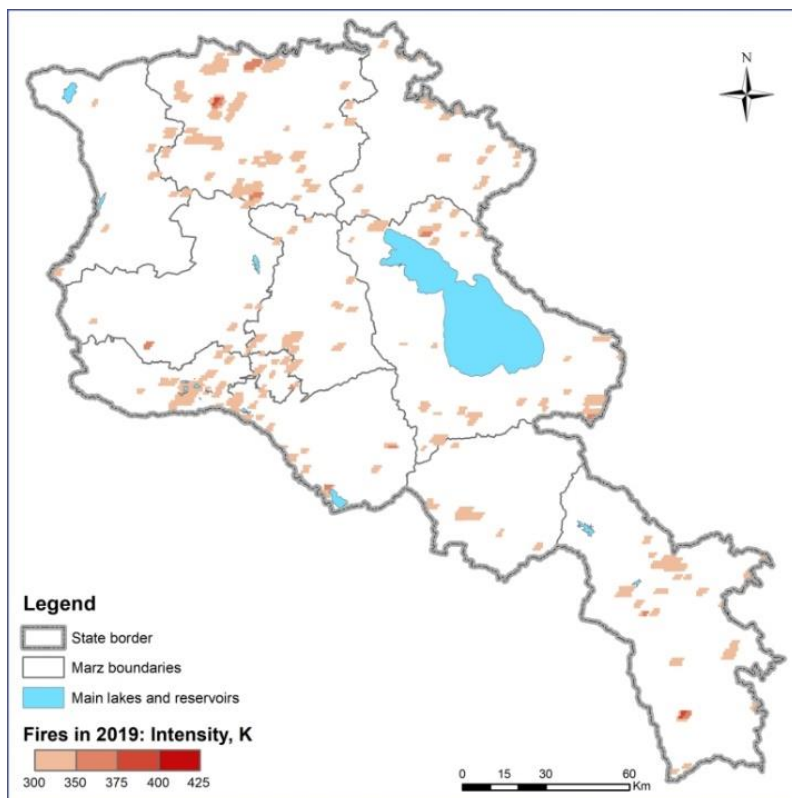
**Table 6:** Distribution by Marzes of degraded, stable and improving land (ha) under Trends.Earth modelling.

MARZES	Total, ha	Water/No data	Degraded	Stable	Improving
Vayots Dzor	231,703	193	8,342	80,372	142,796
Tavush	272,412	367	45,532	135,757	90,756
Syunik	449,652	1,646	33,889	240,868	173,249
Shirak	267,926	2,553	21,745	179,019	64,610
Lori	380,492	283	53,294	227,455	99,460
Kotayk	209,339	109	24,867	104,635	79,728
Gegharkunik	530,836	126,082	52,198	253,934	98,622
Armavir	122,850	124	35,787	46,498	40,441
Ararat	208,818	1,373	25,492	88,838	93,115
Aragatsotn	275,237	248	46,478	133,958	94,553
Yerevan	22,295	74	10,126	6,102	5,993

While the majority of land under this modelling system is either under stable or improving categories, there is clearly an increase in the extent of land showing degradation as compared to the individual mapping and trends of each SDG 15.3.1 indicators.

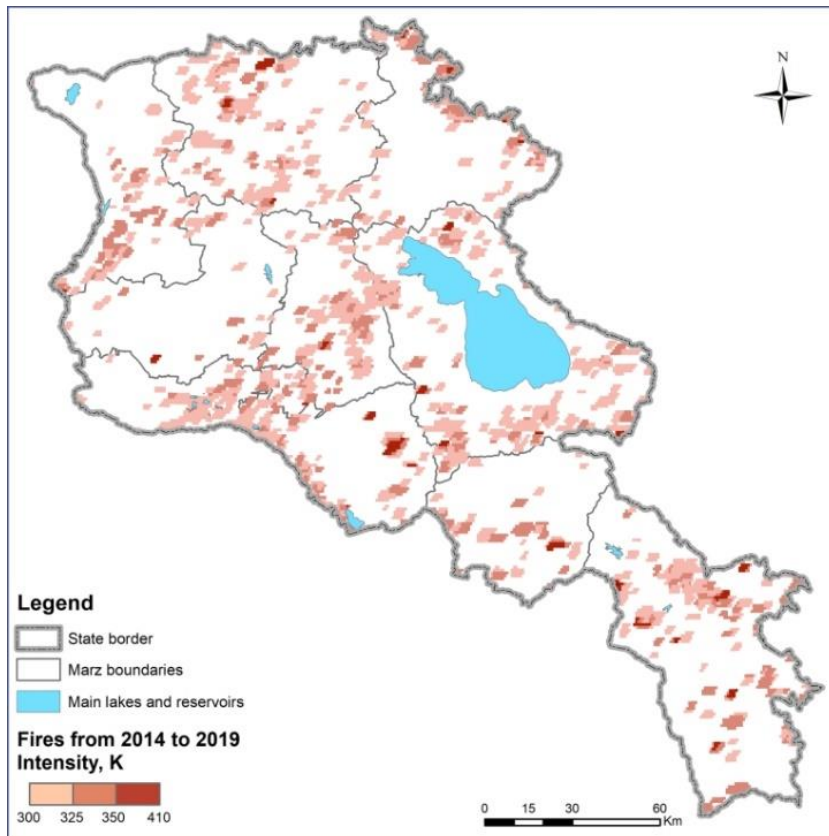
In addition to the “degradation map”, incidences of fire both in 2019 and over the last 5 years were mapped using the now popular FIRMS dataset. The results are seen in Figures 6 and 7 below.

**Fig. 10.** Fire Incidence in 2019 for RA using FIRMS dataset (FAO 2020)





**Fig. 11.** Fire frequency over last 5-year period (2014-2019) (FAO 2020)



The accuracy of these databases can vary. If confirmed, then the presence of fire activity allows for insights on local natural resources management. Although its use and value as a tool is debatable, most experts agree that consistent, seasonal use is detrimental to long-term ecosystem health.<sup>65</sup> It also means opportunities are lost to use biomass in more efficient means. If crop stubble is being burnt, an available fodder resource is being lost, valuable nutrients are being removed from the local system and GHG emissions are released. If old, dry, oxidized pasture is being burnt by pastoralists to create “green pick”, then it means grazing patterns are not being optimized or planned at a landscape level. According to the latest available data<sup>66</sup> analyzed by FAO and

contrasted with data from the Armenian Ministry of Emergency Situations, the total area (forest, agriculture and other land) burned in the period 2010-2018 is equivalent to over 340,000 hectares, which corresponding to about 11.5% of Armenia. This would correlate with the presence and extent of fire use seen in the provided maps. Registered fires in Gegharkunik and Vayots Dzor marzes have a slightly different nature. In the Gegharkunik region, these are mainly grassland fires, often caused by special arson by the local population to, in their opinion, “improve pastures”, although this is prohibited by Armenian law. In Vayots Dzor region, the most dangerous fires are recorded in juniper open forests, which lead to serious damage to ecosystems. Pasture fires and stubble burning in fields after harvest are also recorded here.

### **LDN Indicators Mapping results at regional level in the targeted communities**

The above mapping results, especially the Trends.Earth modelling according to the GPG guidelines, can be scaled to determine the status of both regional and community resources and to identify LD or LP hotspots under a hypothetical LDN framework approach with local stakeholders. The selected project community for this project were Shoghakat, Vardenis, Martuni in GegharkuniqMarz and Vayk, Djermuk and EheginVayotsDzorMarz. The mapping results for these communities has been presented, together with the results of surrounding communities for comparison.

The Land cover according to ESA is presented in the map (fig. 24). Land cover according UNCCD classification is presented in Figure 25. Figure 26 presents the land cover classification maps for 6 pilot communities, including three communities in Gegharkunik marz and 3 communities in Vayots Dzor marz.

The statistics on the land areas for each land cover class is presented in Table 7 below:

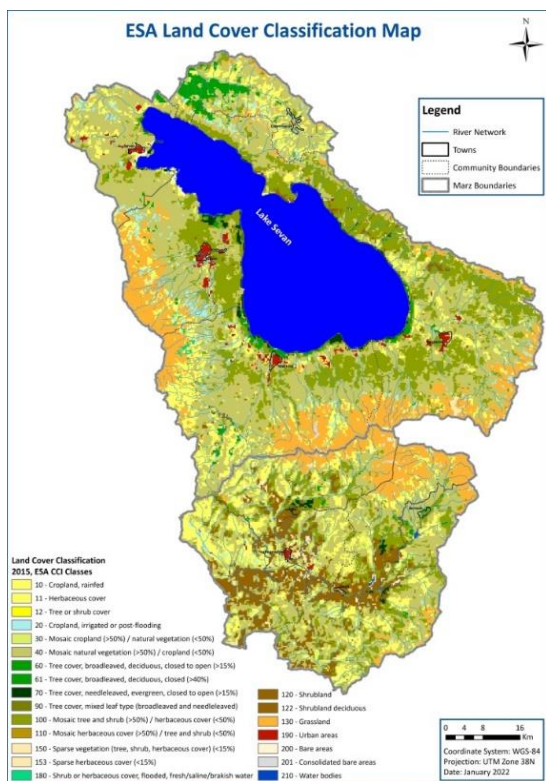
<sup>65</sup>DeBano, LF 1990, The Effect of Fire on Soil Properties, U.S. Forest Service.

<sup>66</sup>[MCD64A1: MODIS/Terra and Aqua Burned Area Monthly L3 Global 500 m SIN Grid V006](#)

**Table 7. Land Cover class area and degradation per class for Gegharkuniq and VayoyDzor marzes**

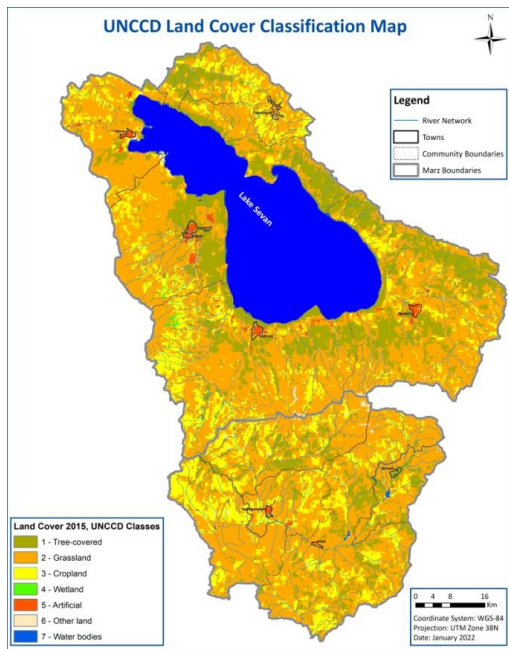
ID	NAME	TREE COVERED	GRASSLAND	CROPLAND	WETLAND	ARTIFICIAL	OTHER	WATER
<b>Gegharkunik marz</b>								
1	Shoghakat	13,792.1	14,813.1	2,756.2	0.0	44.6	61.4	652.8
2	Martuni	20,593.3	72,537.0	22,373.2	457.5	1,539.9	463.1	173.0
3	Vardenis	35,138.7	63,972.7	11,471.1	0.0	948.5	290.1	357.1
	Chambarak	7,375.9	19,661.6	10,729.1	0.0	39.1	5.6	44.6
	Sevan	3,693.5	27,707.0	6,388.3	39.1	920.6	401.7	468.7
	Gavar	15,253.9	40,645.5	7,721.8	256.6	1,595.7	256.6	513.3
		95,847.4	239,336.9	61,439.7	753.2	5,088.4	1,478.5	2,209.5
<b>Vayots Dzor marz</b>								
4	Yeghegis	8,067.7	29,263.6	10,148.8	0.0	11.2	764.4	0.0
5	Jermuk	4,491.4	13,396.0	1,751.9	0.0	33.5	100.4	150.6
6	Vayk	14,260.8	63,838.8	17,379.6	0.0	83.7	173.0	94.8
	Areni	2,209.4	27,952.5	13,446.2	0.0	189.7	139.5	0.0
	Yeghegnadz or	1,735.2	15,968.1	5,506.8	0.0	541.2	83.7	0.0
		30,764.5	150,419	48,233.3	0.0	859.3	1,261.0	245.4

*Land cover classification maps in Gegharkunik and Vayots Dzor*

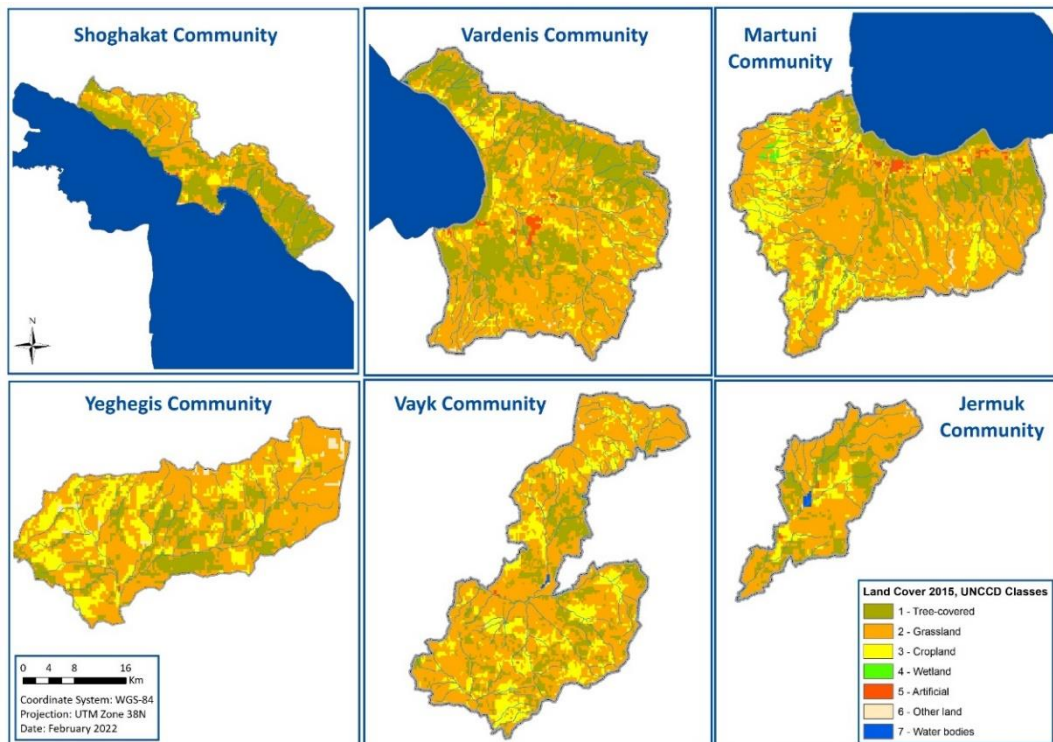


**Fig 12.** ESA Land Cover Classification Map of Gegharkunik and Vayots Dzor marzes

**Fig. 13.** UNCCD Land Cover Classification Map of Gegharkunik and Vayots Dzor marzes



**Fig. 14.** UNCCD Land Cover Classification Map of Pilot Communities



Land

degradation in the targeted regions according to Trends.Earth

The Fig 14 further above provides the results for the mapping of the Land Degradation trends in Gegharkunik and Vayots Dzor marzes, with targeted values represented in a tabular form below for the prioritized (merger) communities:

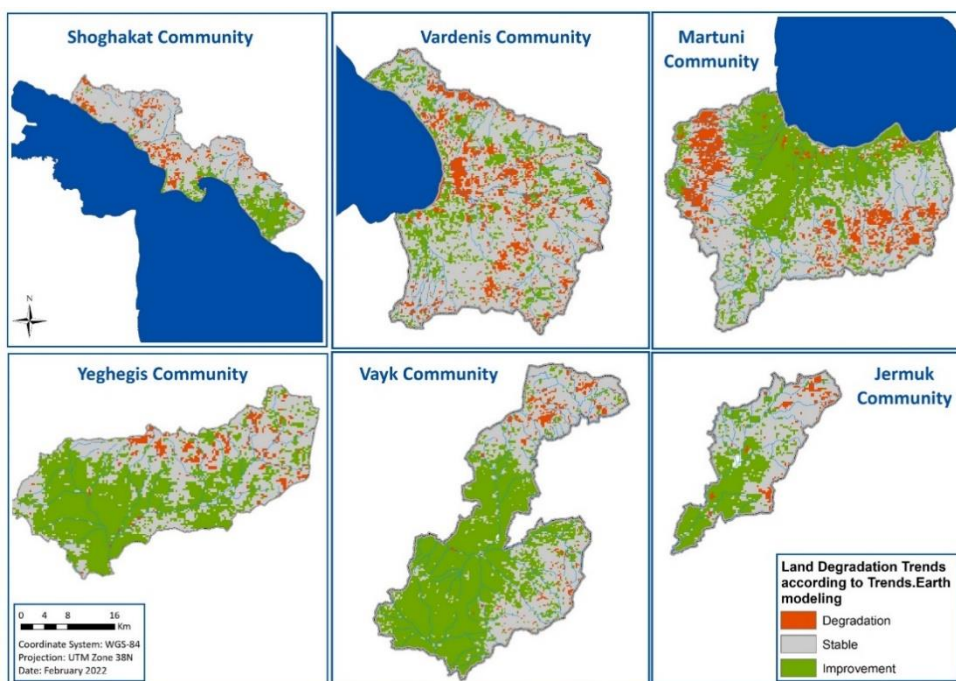


**Table 8.** Land degradation trends in priority communities

ID	NAME	Degraded	Stable	Improving
1	Shoghakat	3,370.5	22,874.9	5,293.7
2	Martuni	15,311.1	59,573.9	42,666.8
3	Vardenis	16,044.6	76,718.9	19,172.3
	Chambarak	6,889.7	28,302.4	2,577.5
	Sevan	2,384.1	32,168.6	4,837.7
	Gavar	7,930.6	34,052.1	24,029.8
		51,930.6	253,690.8	98,577.8
4	Yeghegis	2,622.1	21,665.5	23,896.0
5	Jermuk	1,140.0	10,790.6	7,856.3
5	Vayk	3,544.0	36,634.5	55,524.3
	Areni	292.4	7,063.2	36,589.9
	Yeghegnadzor	604.7	3,881.1	19,435.0
		8,203.2	80,024.9	143,301.5

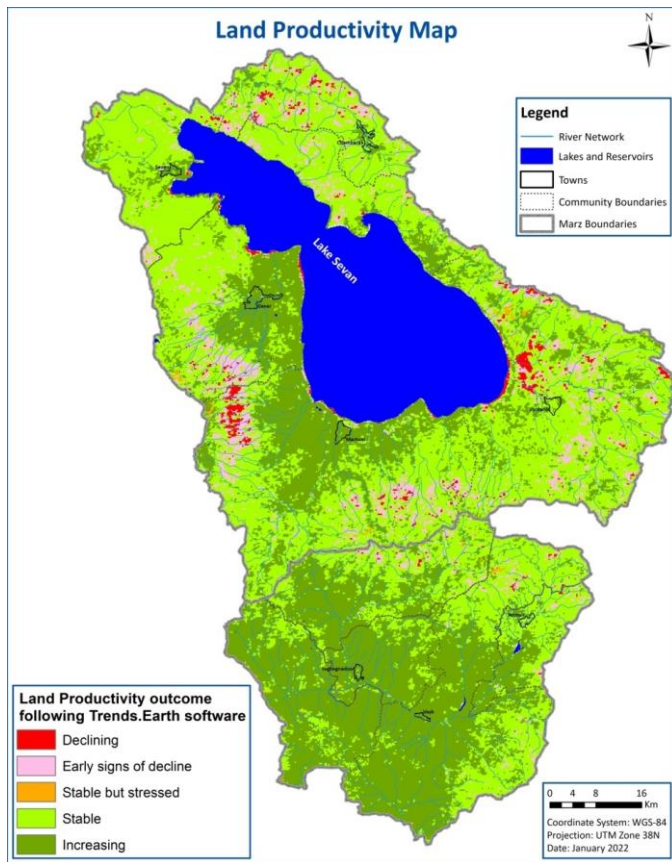
Land Degradation Trends reflect the predominant stable condition of the land resources in Gegharkunik marz whereas in Vayots Dzor marz improving condition of land resources are predominant (with the exception of Jermuk community). Figure 11 below presents the LD trends maps for 6 pilot communities, including three communities in Gegharkunik Marz and 3 communities in Vayots Dzor Marz.

**Fig. 15.** LD trend maps for six pilot communities

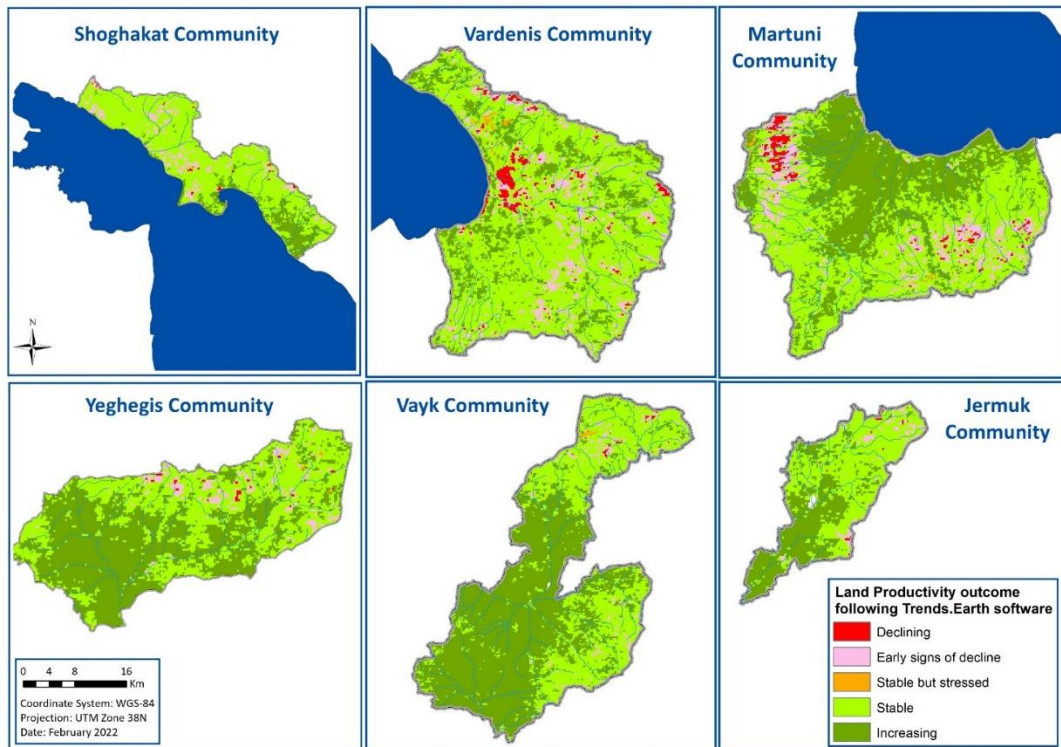


*Land productivity in Gegharkunik and Vayots Dzor*

**Fig. 16.** Land productivity trends in Gegharkunik and Vayots Dzor



**Fig. 17:** Land productivity trends in the prioritized communities

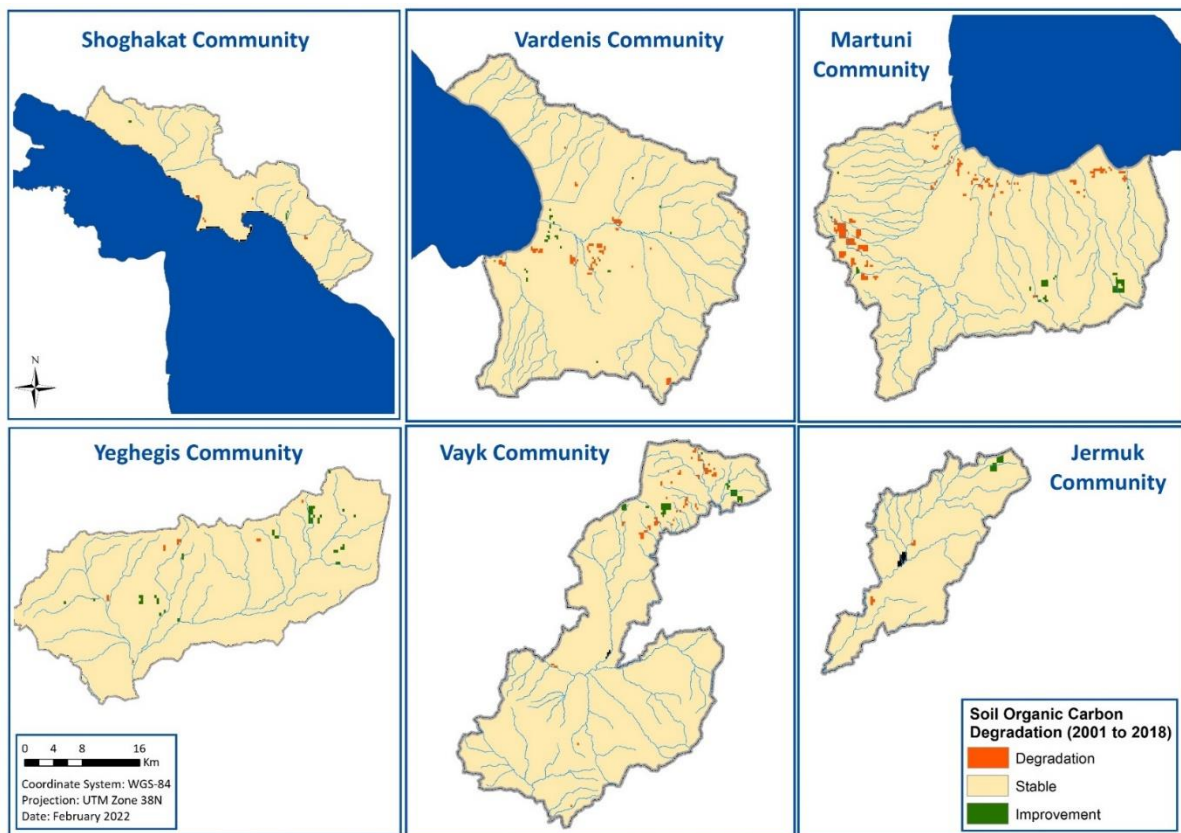


*Soil Organic Carbon trends in Gegharkunik and Vayots Dzor*

**Fig. 18.** Trends in Soil Organic Carbon degradation in Gegharkunik and Vayots Dzor marzes



**Fig. 19.** Soil Organic Carbon trends in prioritized communities



## **General observation of the mapping results**

The maps and LDN mapping results are a crucial step in facilitating access to relevant information, identifying underlying trends and providing data to support LDN monitoring and targets. In this sense, the PPG phase has provided data and a general approach to mapping land degradation under the UNCCD endorsed GPG developed for such a case with limited resources and capabilities. However, it should be further supported by stakeholder inputs, site visits and field surveys. This assessment builds on the national LDN mapping results generated under the PPG phase for the FAO/GEF Project “Implementation of Armenia’s LDN commitments through sustainable land management and restoration of degraded landscapes”, adding scaled mapping results for the UNDP/GEF project targeted regions and communities. Trends seen in the mapping outputs include increases in Land Productivity, relatively stable Land Cover trends, some loss in SOC, with pockets of LD. In addition to determining the type of LD occurring in these areas, more data should be collected on the extent, rate and degree of LD occurring in hotspot selected areas. Fire use or forest fires are also active according to the FIRMS database, though no correlation between this and the LD rates seem apparent. Further investigation is also needed on those areas showing important Land Productivity gains. Of special importance are the remote grasslands. Especially as it relates to the question “Does the increasing productivity in these areas correlate to an increase in palatable plants and perennial grasses, or the increasing presence of invasive shrubs or woody species” is especially important in order to maintain these resources and the ecosystem services they provide. The maps also seem to show trends of degradation that was equally spread among the Tree, Grassland and Cropland land covers in hot spot areas that were in the upper sections of river sub-catchments. While CC may explain some changes seen, given a hypothetical reduction in precipitation or snow cover, management must also be considered as a driver. Remote sensing observations show that Land Degradation Trends are that in Gegharkunik marz lands in stable condition prevail on improving and degraded, but in Vayots Dzor marz improving lands prevail on all other types (besides Jermuk community). Analysis of Land Productivity shows that most part of land is in stable condition in all 6 pilot communities. Declining (and early signs of decline) is most pronounced in Vardenis and Martuni communities. Furthermore, Land Productivity in increasing conditions is best expressed in all 3 communities of Vayots Dzor marz and in Martuni community but occupies rather large areas in other two communities of Gegharkunik marz. Estimation of Soil Organic Carbon degradation trends shows that in all 6 communities the stable condition prevails on degradation and improvement. It has to be noted that the worse situation is in Martuni and Vardenis communities, and the best in communities of Vayots Dzor marz.

### **Recommendations for the project design** **PROPOSED STEPS FOR OUTPUT 1.1.1 and Output 1.1.2**

#### ***Outcome 1.1:***

*Land Degradation Neutrality in Gegharkunik and Vayots Dzor provinces promoted through integrated multi-sectoral landscape approaches*

**Output 1.1.1** Land Degradation trends assessed, LDN targets set-up and monitoring system developed for Gegharkunik (534,900 ha) and Vayots Dzor (230,800 ha) provinces, providing a framework to avoid, reduce and restore degraded land through integrated landscape planning

#### **Setting the LDN targets**

The first step of the project implementation should be **Setting up LDN working groups at regional level**. This activity has to be supervised by the Ministry of Environment (EPIU). Representatives of the Departments of Agriculture and Nature Protection of the regional governments (marzpetarans) of both regions should become coordinators of all the work on LDN. The working group should also include representatives of the Commission on Land Use and of the Department of Architecture and Land Use of Marzpetaran. The group should also include representatives of enlarged communities. These groups have to identify all the relevant stakeholders at regional and community level in Gegharkunik and Vayots Dzor marzes and to create of an “**LDN Stakeholder Working Group**” followed by a series of round table meetings and multi-stakeholders engagements. An initial information and education about what Land Degradation Neutrality stands for, will be organised by the project (LDN Inception Workshop) that will explain and clarify the *no-net-loss* approach. Dedicated LDN training events will follow. The **LDN Stakeholder Working Group (LDN SWG)** will coordinate its work with the **Integrated Spatial and Land Use Planning Marz Committee (ISLUP MC)**, to be set-up under Output 1.1.2. The LDN SWG and ISLUP MC will consist of Ministry of Economic (Agriculture), Ministry of Environment, Ministry of Territorial



Administration and Infrastructure, State Committee of Real Estate Cadastre, Forest Committee and Local Forestry's, marz authorities, local communities' representatives, farmers (individual farmers and representatives of cooperatives), women groups.

The next step - **Assessing land degradation**. This step will include a retrospective assessment of land degradation and desertification trends, in order to provide evidence for setting realistic LDN targets, and for making decisions about counterbalancing measures and prioritizing efforts in areas with progressive degradation. For this, there are necessary materials (including maps) prepared during the PPG Stage. The three LDN indicators will be complemented, as needed, with other indicators monitored in the country, validated for Gegharkunik and Vayots Dzor marzes, estimating for each indicator the average value over 10-15-year assessment period prior to the current condition (i.e. 2000-2015). Several land degradations "*hot spots*" will be identified, and restoration actions and investments prioritized to address these areas (in coordination with Output 1.1.2 and Outcome 3.1). During this stage drivers of land degradation have to be identified. Direct local drivers and other underlying (national level) drivers will be identified and analyzed (including inadequacies in the national legal framework) as well as socio-political circumstances in order to contextualize the problems.

Regional voluntary LDN targets have to be defining for the three main LDN indicators complemented with additional indicators. In addition, with the support of the International LDN Expert, the project will facilitate embedding LDN response hierarchy at marz level planning (under Output 1.1.2).

All of the above activities should be accompanied by workshops and trainings in local communities involving as many participants as possible and providing equal participation opportunities to women and men. Unfortunately, in the existing development strategies of both marzes for 2017-2025 and ongoing and planned programs lack the very concept of LDN. The working groups should determine what changes and additions should be made to these strategies and programs. The Focal point of UNCCD must be involved in this work.

The next step - **LDN planning and implementation**. This stage will establish the LDN compatible land use planning approaches in order to achieve the LDN targets at the marz and community level. Based on the identified land degradation hotspots, local experts and the LDN International Expert hired by the project will draw up a hierarchy to *avoid-reduce-restore* degraded land and determine its costs in all targeted communities (using the ELD approach). This should take into account both land degradation trends and drivers and how gender differences and inequalities contribute to land degradation. At this stage it is also necessary to choose areas and methods for the application of LDN compatible SLM measures that will avoid-reduce-restore degraded land. These Plans will be formally approved by marz authorities.

The next step – **Monitoring and Identifying measures to achieve LDN targets**. This step will identify the specific measures that need to be implemented on the ground, consisting of a whole range of feasible Sustainable Land Management (SLM) interventions. Land use decisions will be monitored, and their cumulative impacts will be estimated so that negative impacts will be counterbalanced by reversing land degradation on the same land type elsewhere.

There is currently no agreed method of assessing or monitoring LDN voluntary targets or guidelines at a national level. National strategies exist, but do not have the authority, autonomy or funding to self-organize and act at landscape or regional scales in efforts to reduce LD extent and rate. LDN needs to be integrated into e.g. the Armenian Soil Information System (ArmSIS: <http://armsis.cas.am/>). With the project's support, an LDN monitoring system will be established and implemented at marz level, to help assessing the success of the land decisions and the identified set of interventions, by observing the changes on the land status, through monitoring of each LDN indicators separately. The values of all three indicators must remain stable or improve for LDN to be achieved. Advancing towards LDN regional target will contribute to the LDN National Voluntary Target by strengthening the land planning process in Armenia. Progress reports have to include areas and methods which were used for degraded lands for their restoration, as well as for reduce and avoid soil degradation. After implementation during next 2-3 years new assessment of these areas has to be organized and received data compared with first ones.

The GEF/FAO LDN Project organizes, coordinates and implements similar LDN approaches in Lori and Syunik marzes of Armenia. It will be very useful to compare approaches to LDN implementation and data received in these marzes with data for Gegharkunik and Vayots Dzor marzes and approaches for LDN. During project

implementation it will be very useful to organize joint meetings, seminars and trainings on different level for exchange experience and for organizing monitoring system and data collection and storing.

All activities on this output have to start at the first year of project implementation; all organizing activities should be organized during the first three months of project implementation. The direct participation of the local population, all stakeholders in the implementation of the proposed actions is necessary. For this, first of all, it is necessary to increase their level of knowledge on LDN and ISLUP, including the proper management and use of pastures and hayfields. For this goal workshops for all stakeholders should be organized. In addition, training should be organized for specialists on the **LUP4LDN program package**, firstly, to understand the possibilities of this program for assessment at the national and regional levels, and secondly, to identify on the spot the most crucial to focus land restoration efforts and what sustainable land management interventions are optimal and feasible to achieve LDN.

**Output 1.1.2** *LDN compatible Integrated Spatial and Land-use Plans (ISLUPs) informed by climate change vulnerability, Economics of Land Degradation (ELD) and biodiversity values in prioritized communities*

The project will build on the FAO land use planning guidelines and will implement LDN compatible land use planning, piloting (as feasible) an innovative UNCCD supported software *LUP4LDN*.

The LDN hierarchy “*avoid-reduce-restore*” will be central to the integrated land use planning in the project area (6 communities of Gegharkunik and Vayots Dzor marzes). Within the context of application of LDN concept in the integrated land use planning, the LDN *hot-spot areas* and areas under high risk of future degradation will be validated under Output 1.1.1. The project will seek to use (or to adapt) the “*LUP4LDN*” (Land Use Planning for Land Degradation Neutrality) software/tool, which integrates LDN into participatory land use planning via an interface that allows users to evaluate land use and land management transition scenarios, providing visual and quantitative representation of land degradation gains and losses. LUP4LDN supports users to answer *where* is most crucial to focus land restoration efforts and *what* sustainable land management interventions are optimal and feasible to achieve LDN”. Placing LDN at the centre of land use planning can be challenging, as it was reported by the UNCCD Science-Policy Interface (SPI)<sup>67</sup>, in that “limited national progress is evident when it comes to establishing effective integrated land use planning systems and embedding neutrality mechanism into them”.

During the PPG stage some data on the projected areas (6 communities in 2 marzes) were collected, however the data collection must be supplemented in the first stage of project implementation (for example, climate; landforms and soils; land cover; water resources; natural ecosystems; natural and anthropogenic processes - e.g. areas vulnerable to/impacted by degradation, water and wind erosion, loss of humus content, etc.; and socio-economic - e.g. population, including age and gender distribution, assessments on linkages between land use types and roles and responsibilities of women, gaps in women participation in decisions on land use and land management, settlements and current economic activities, access to markets, etc). The project experts working under this output will work together with the project specialists that are carrying out biodiversity inventories and support the PAs zoning under Outcome 2.1 in order to map out “biodiversity hotspots” and include the necessary protection measures into the LUPs/ISLUPS.

Identification of land potential and spatial assignment of appropriate land use types and practices using participatory planning methods that considers the needs of all the stakeholders, differentiated needs of men and women, and participation of vulnerable groups, local knowledge and development priorities in the communities. At this stage, different project expert teams (working to support different outputs) will work together. The multi-disciplinary teams of experts will assess the potential impacts of different land use options, the assessment of land degradation trends and intensity within each land use type at district level (e.g. pastures/rangelands, forests, irrigated areas) and will identify potential counterbalancing measures within each land use type.

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<sup>67</sup>[https://knowledge.unccd.int/sites/default/files/2019-08/UNCCD\\_SPI\\_2019\\_Report\\_1.2.pdf](https://knowledge.unccd.int/sites/default/files/2019-08/UNCCD_SPI_2019_Report_1.2.pdf)

During this stage appropriate economic activities and scale for each land unit that will not deplete soil resources and will maintain integrity of ecosystems and ensure productivity for agricultural lands in the long term has to be determined.

The project will apply targeted feasibility/risk assessments (including climate-related risks and vulnerabilities) and site-specific screening in selected areas, to identify, prevent and mitigate potential economic displacement and negative impact on the critical habitats. Potential conflicts among different land-users and between land users and ecosystems will be assessed and measures to mitigate or eliminate such potential or existing conflicts, will be agreed with stakeholders and included in the respective plans. If confirmed, the risk of economic displacement will be managed by integrating all elements of a **Process Framework** into the respective plan for the given site.

A monitoring and enforcement system for the spatial and land use planning will be put in place, providing land inspectors with protocols to monitor LDN compatible ISLUPs. The roles and responsibilities of the government institutions involved in territorial planning will be clearly identified and enforcement will be clearly defined based on their functional roles.

Activities for this output will be linked to the land degradation assessments and setting a mechanism for LDN. After identification of land degradation “hot spots” and hierarchy **avoid-reduce-restore** degraded land Integrated Land use planning working group at community level has to be established (6 groups). To do this, a series of seminars should be held (possibly 2, one in each marz). Although any GEF process should be open to all those willing to participate, of special importance are those who: a) use the land to obtain their livelihoods (land users), b) have an intimate knowledge of the area land management history (older generations), c) have intimate knowledge of the natural systems or land degradation processes (extension workers/NGOs), d) specialists planning specially protected nature areas (Ministry of Environment/NGO) and e) have a power of decision over the area (administrators/politicians). The last group may come as a surprise, but it is important to understand how they view LD and ISLUP. It is very important that in addition to providing equal opportunity of men and women to participate in the stakeholder engagement process, to find people or groups that could provide quality data or first-hand information on Gender issues and their links to LD and how LD affected women and men.

Unfortunately, in the existing development strategies of both marzes for 2017-2025 and ongoing and planned programs lack the very concept of LDN and ISLUP. The working groups should determine what changes and additions should be made to these strategies and programs.

Land Degradation Assessment in Dryland (LADA) global and local tools could be used to assess land degradation status, trends and drivers, including assessment of how gender differences and inequalities contribute to land degradation. The activity was initiated in the PPG phase, but gender assessment, ground truthing and stakeholder consultations with both women and men farmers will be undertaken in the first six month of the implementation phase.

World Overview of Conservation Approaches (WOCAT) questionnaires for technologies (QT) and approaches (QA) will be used to assess drivers of degradation and barriers to SLM, including land tenure issues, based on interviews and stakeholder consultations. The QT already includes questions on land use rights and land tenure as a driver of degradation will be assessed in depth.

Economics of Land Degradation (ELD) tools and knowledge will be used to assess and/or estimate the costs of land degradation through a multi-level approach for quantitative assessment of the economic benefits derived from adopting sustainable land management practices.

## Annex 19: Biodiversity baseline and feasibility analysis for Outcome 2

Armenia is part of WWF’s “Global 200” and Conservation International’s “Caucasus Hotspot”. The country rests at the juncture of three biogeographic provinces (Central/Northern Europe, Central Asia, and the Middle East/North Africa). Two major biogeographic zones converge in Armenia - the Eastern Anatolian Mountain Steppe and the Caucasus Mixed Forests. Armenian landscapes include deserts, semi-desert, subalpine and alpine meadow, mountains steppes and forest. The nation’s average altitude is 1,850 m with over 90% of the land lying above 1000m. The highest point in the country is 4,095m (Mount Aragats). The lowest is 375m (Debed River).

**Table 1: Estimated number of species found in Armenia**

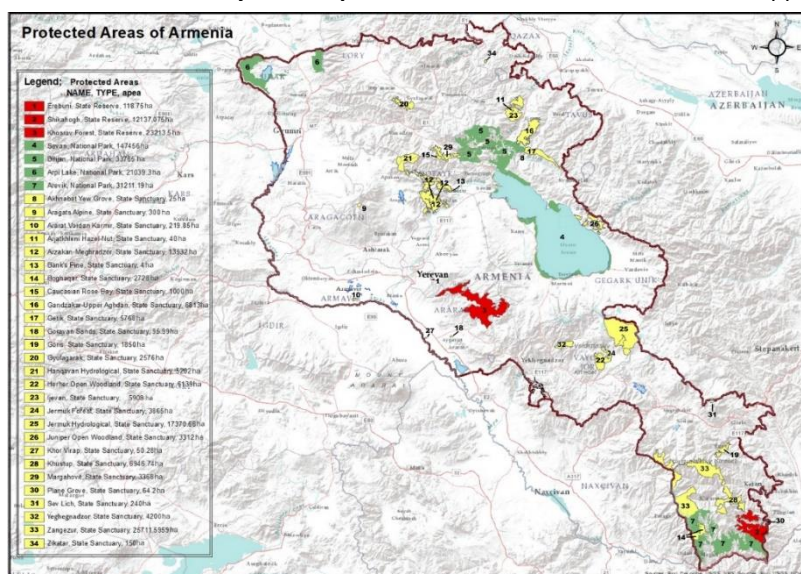
Category	Total	Endemics	Percentage
Plants	3,555	106	3%
Invertebrates	17,000	316	1.8%
Fish	30	9	30%
Reptiles	8	1	12%
Birds	356	0	0%
Mammals	83	0	0%

Source: WWF Armenia

The combination of altitudinal variation and bio-geographical convergence promotes a wide range of climates, adapted habitats and commensurate biodiversity. Armenia has a high level of endemism and is a center of agricultural plant genetic diversity. Food crops such as soft and hard wheat, peas, pulses, pears, grapes astragal, and cornflower originated and were domesticated in this region. Armenia still supports many wild relatives of these original crop plants including three of the world’s four wild relatives of wheat. There are 2519 species of wild relatives of cultivated plants representing 113 families and 429 genera. 97 species of them are endemic and 266 are registered in the Red Data Book of Armenia. Some 2,000 species of plants are used for nutritive and curative properties, fodder or oil, honey, and resin production. Centuries of selection by farmers have resulted in diversity of local varieties of grapes, apricots, and peaches. Resident large mammal species include Caucasian leopard (*Panthera pardus ciscaucasica*), Brown bear (*Ursus arctos*), Bezoar goat (*Capra aegagrus*), Armenian mouflon (*Ovis orientalis gmelinii*), and Striped hyena (*Hyaena hyaena*).

**Fig. 1. Protected areas of Armenia (Source: Ministry of Environment)**

Armenia’s current system of protected areas covers 387,000 ha or approximately 13% of the territory. If Lake Sevan (147,456 ha) is excluded, the total percentage drops to 7%. Two habitat types (forests and Lake Sevan) represent ninety-one percent of the lands included within Armenia’s current protected area network. Important habitat types such as desert-semi desert, wetlands, steppe, meadow, steppe-meadow and high mountainous ecosystems represent approximately 80 percent of Armenia’s total landmass. However, these ecosystems important for most of Armenia’s critically endangered flora/fauna are under-represented within the current protected area system.





**Table 2. Armenia's Current Protected Area System**

Area Type	Number	Total Area (ha)	Percent of Territory Represented
State Reserves	3	35,469	1.2 %
National Parks	4	233,471	7.9 %
State Sanctuaries	27	126,195	4 %
Natural Monuments	232	N/A	-
Total			13.1 %

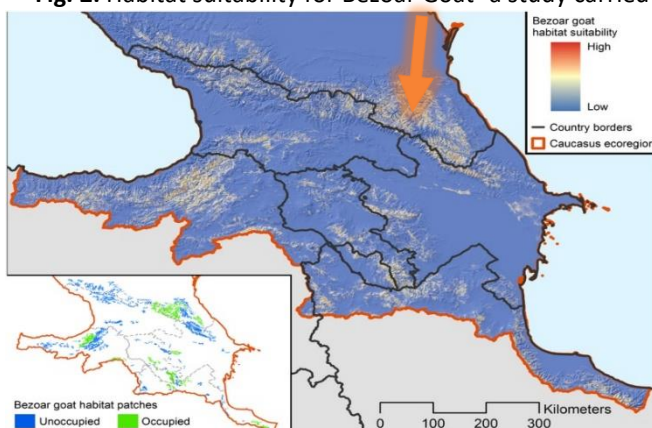
Source: Ministry of Environment

Slightly less than 10% of the current home range of Armenia's Caucasian Leopard and Bezoar Goat is afforded protected status. Mountain ungulates are commonly targeted by poachers. For example the Bezoar Goat disappeared from the Pambak Mountain range and Mount Aragats and (although a very small population may still be present in Artanish Peninsula), this species has no longer been spotted in Gegharkunik during recent years due to poaching and habitat fragmentation.

Restoring mountain ungulates population is often limited by inadequate information related on the suitability and availability of habitats and on the type of restoration measures that would help to increase and link existing populations.

A study carried out by the Critical Ecosystem Partnership Fund<sup>68</sup> has mapped the available and suitable habitat of the Bezoar Goat (*Capra aegagrus*) in the Caucasus, using large occurrence data set, identifying suitable habitat patches and evaluating them in terms of connectivity, protection status and competition with other mountain ungulates. The results led to the conclusion that existing Bezoar Goat population is fragmented in smaller clusters in Caucasus (Eastern Greater Caucasus, Southern Armenia and surroundings, Eastern Turkey and Iranian Alborz Mountains) which are isolated from each other, although there are widespread areas of suitable unoccupied habitats between them. Within the frame of this study, WWF Armenia has mapped the available habitats of the Bezoar Goat in Armenia and the potential community conservation areas within the Southeastern Lesser Caucasus Ecological Corridors. Further mapping in Southern Armenia and in Vayots Dzor region will continue during 2022-2023. This UNDP/GEF project in cooperation with WWF Armenia will build on these previous and on-going results and tested approaches and will continue the mapping of available habitats for recolonization of Bezoar Goat in Lake Sevan Basin- Gegharkunik region. At the same time, based on WWF Armenia "Caretaker networks" approach, the project will support community endorsed safe wildlife migration corridors to facilitate the extension of Bezoar Goat population towards Artanish peninsula in Gegharkunik and Sevan Ridge KBA (where historically the Bezoar goat population occupied these habitats). The study suggests that high human pressure in particular poaching represents the main barriers to re-colonization of available habitats and in some cases competition with other mountain ungulates.

**Fig. 2. Habitat suitability for Bezoar Goat- a study carried out by the Critical Ecosystem Partnership Fund** (The arrow indicates available/suitable habitats in Gegharkunik, Sevan Ridge)



The Bezoar Goat is "globally Vulnerable and rare, with a population tending to reduction in range and abundance"<sup>69</sup>, the existing population clusters in Armenia are protected in Khosrov and Shikahogh reserves, and some of the sanctuaries (Her, Jermuk Forest, Yeghegnadzor and others where Bezoar Goat still persists) and presumably on a very limited areal in Sevan National Park (in Artanish Peninsula), although in the latter case it has not been spotted in recent years. Since 2002 WWF Armenia and

<sup>68</sup> <https://conbio.onlinelibrary.wiley.com/doi/10.1111/csp2.276>

<sup>69</sup> [https://wwfeu.awsassets.panda.org/downloads/cepf\\_caucasus\\_web\\_1.pdf](https://wwfeu.awsassets.panda.org/downloads/cepf_caucasus_web_1.pdf)

Critical Ecosystem Partnership Fund (CEPF) and the Eco-Corridor Fund for the Caucasus (ECF) supported by Germany's government, have provided assistance for the conservation of Bezoar Goat.

Moving forward, and building on lessons learned the way forward in the conservation actions for the Bezoar Goat and mountain ungulates would include e.g.:

- preservation and restoration of good quality grasslands, sparse forest stands and water sources in most arid areas (e.g. Urts Ridge; Sevan Ridge etc);
- integrated land use planning, enforcement of legislative and preventive measures to control mining and infrastructure development;
- raising the levels of public awareness about these species and other wildlife among local people
- involving local communities in supporting wildlife eco-corridors and incenting people away from destructive behaviors such as poaching and unsustainable agriculture practices;
- monitoring and research – as essential tools to determine population status and trends in space and time and therefore take appropriate management and conservation actions.

*General considerations related to the management of the PA system (including Sevan National Park) and need for an improved ecosystem connectivity*

Previous biodiversity GEF funded projects have analyzed the shortcomings of the Protected areas of Armenia (such as the GEF MSP “Developing the Protected Areas System of Armenia”) in terms of biodiversity representativeness and management, highlighting the general shortcomings related to financing and management capacities of the PA system, and flagging the dire situation of the relatively isolated wildlife sanctuaries and nature reserves, many of which- although benefiting from legal protection- are exposed to threats due to ineffective patrolling and law enforcement and insufficient capacities for adequate monitoring and research activities of the PAs.

Armenia has a **traditional approach** to biodiversity management and has established and continues to create “traditional” protected areas that tend to remain understaffed and underfinanced. Smaller conserved landscapes such as State Reserves and Sanctuaries are established under the responsibility of either the larger National Parks or of the forestry authorities, none of which however having sufficient capacities for their effective monitoring and adequate biodiversity management especially in view of climate change induced modifications of habitats and species area. Although very important, these smaller conservation areas are ecologically isolated and are in fact many times located on community areas, with traditional economic uses such as grazing, hunting, and the collection of wild plants and therefore securing their ecological integrity is quite challenging.

The “**creative” opportunities** to protect complex landscapes and ensure ecosystem connectivity and links between isolated wildlife sanctuaries, IBA/KBAs and reserves, includes finding suitable, feasible ways of involving local communities in conservation, incentivizing them away from destructive agriculture and poaching and involving them in supporting ecosystem connectivity and wildlife migration eco-corridors.

The main conclusions of the final evaluation of the **PIMS 3986** GEF biodiversity project “Developing the Protected Area System of Armenia” indicate that the involvement of local communities in conservation of biodiversity will be crucial for securing critical biodiversity values; and a continuous focus should be put on improving monitoring and research and institutional capacities of the PAs.

As most threats come from **land use and land use change**, it is important to highlight that land use planning in Armenia is practically absent at the national or regional levels and as such under a baseline scenario there is little to expect in terms of mainstreaming biodiversity in land governance. There is no central or integrated planning and there are no specialized organizations and institutions dealing with land use planning, let alone mainstreaming of biodiversity spatial requirements in the land use planning processes. At the local level only, issues related to land use change are addressed with the involvement of relevant state institutions, (for example, changing the status of agricultural land to industrial land, etc.) but little or no changes that would favor biodiversity. Development, agriculture and illegal exploitation of biological resources is therefore encroaching on parks and protected areas and threatening KBAs/IBAs located outside PA system. Within the PAs territory,

the monitoring and patrolling capacities of PA staff are not able to ensure minimum patrolling of the entire PA landscape and as such core protected areas where wildlife may have found a last refuge, are threatened or forced to migrate. Private businesses are not incentivized to improve their operations and reduce their negative footprint on natural ecosystems. Of the total vulnerable species, many included in the Red Book of Armenia the majority suffer primarily from habitat loss. And although the causes of habitat loss are known and solutions are available, the implementation remains debatable. Availability of conservation information is many times cited as a barrier for biodiversity management outside PAs, but even where this information exists, and regulations are clear the conservation information is not monitored and use for effective management of the PA and a better integration in its surrounding geographies.

This is coupled with **insufficient financial resources** and technical capacities of government institutions to provide for adequate conservation and management of the Protected Areas under the project's focus (Sevan National Park), despite the government's efforts. In addition, there appears to be a general lack of business-oriented approach to the planning management of the protected area. The **METT** capacity scorecard completed during the PPG for Sevan National Park is showing some identifiable patterns of strengths and weaknesses. In general, issues related to the protected area legal establishment, core zone boundary demarcation, regular workplan and resource inventory are undertaken in most protected areas to an acceptable standard (although significant gaps persist), that does support achievement of the conservation objective. The management of the National Park tends to focus more on lake Sevan itself and the littoral area, less on the rest of the PA landscape. Activities related to PA research and monitoring, and enforcement of legal provisions, are less often undertaken and are also less effective considering the complexity of the Sevan National Park landscape and the inter-related drivers of the threats to its biodiversity.

The biodiversity important areas (KBAs/IBAs) located outside PAs and Sanctuaries (Category IV IUCN) would be more suited in terms of biodiversity representativity and conservation but several major policy shortcomings in Armenia's current situation result in an inability of Sanctuaries to serve as a meaningful land use management category that protects key habitats and allows for reasonable economic use. While there are four main policy instruments that provide an opportunity to direct the form and function of Sanctuaries (legislation, regulations, charters, and management plans), they do not always adequately clarify the form and function of Sanctuaries either as a group or individual protected area. There are no updated national operational guidelines or norms/standards to guide the process of establishment, planning and management of Sanctuaries, especially with a view of increasing climate resilience and maintaining ecosystems functionality. There is no local community participation in Sanctuary management. In the current scenario, the institutional structure for management of Sanctuaries KBAs/IBAs is muddled on both national and local levels. There are however a few demonstrations of local integrated solutions that work in the case of KBAs/IBAs and Sanctuaries located on communal areas. These models are supported by WWF Armenia and implemented with the involvement of local communities in conservation and protection of wildlife corridors.

There is a need to identify and recognise and support additional areas/contributions that are and can in the future deliver effective biodiversity conservation. For example in Armenia, as in other parts of the Eastern Europe and CIS Region, the concept of the **Other Effective Area Conservation Measures (OECMs)** is largely unknown, however (as mentioned above) an important groundwork in creating community supported eco-corridors exists in Armenia through the work done by the Eco-Corridor Fund for the Caucasus (ECF) and WWF Armenia in the South Eastern Lesser Caucasus Ecological Corridor for the protection of wildlife migration corridors<sup>70</sup>, so far enlisting the support of five communities which have signed conservation agreements. While WWF Armenia's facilitated community agreements has shown what works at community level, efforts to align NBSAP with the priorities of the post 2020 Global Biodiversity Framework may represent the needed opportunity to formalise a more consistent framework for OECM concept at national level, for *in-situ* conservation of biodiversity and associated ecosystem services and functions, and where applicable, cultural spiritual, socio economic and other locally relevant values. OECMs are a means by which to bring new or existing areas important for biodiversity into conservation planning and support Armenia's targets for biodiversity. Climate change is increasingly driving species to adapt by shifting their range, and they need to be able to move to new protected or conserved areas, hence there is a renewed emphasis on the importance of **ecological connectivity** involving local communities as opposed to a traditional approach that would, at best, preserve isolated islands of biodiversity.

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<sup>70</sup> <https://panorama.solutions/en/solution/community-based-landscape-conservation-armenia>

## ***Main biodiversity threats***

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Armenia's biodiversity is threatened on a variety of fronts. The cumulative impacts include the accelerated loss of vulnerable habitats and associated species, the reduction of ecological functionality and the growing insecurity of ecosystem services. Opportunities for communities to realize the potential social and economic benefits accruing from biodiversity are lost. As links are broken between remaining natural areas, Armenia's landscape is becoming ever more fragmented.

***Threats to fragmented wildlife populations and their habitats.*** The Caucasus ecoregion is a global biodiversity hotspot. Beyond the boundaries of the well-established protected areas in Armenia, the enforcement of wildlife law is weak and inefficient. Poaching of large mammals such as Mouflon and Bezoar goat for sport and consumption remains quite common. As mentioned above, these wild mountain ungulates often occur in fragmented populations, because they depend on elevation belts such as alpine grasslands or landscape features such as cliffs on which they rely, as refuge from predators. Due to these associations, wild ungulates are relatively easy to locate and hunt. The analysis of their spatial distribution and delineation of wildlife corridors in the spatial and land use planning, with clear conservation requirements and enforcements should therefore become a priority. Illegal tree cutting for fuel wood, overuse of communal grasslands for livestock grazing are already negatively affecting local biodiversity and key species habitats. Climate change will likely alter the spatial requirements of most species and therefore some flexibility and adjustments should exist within the landscape managed specifically for biodiversity benefits. In addition, Armenians have a long and largely positive tradition of using wild plant species for cooking. As socio-economic conditions change, traditional uses are gradually becoming commercialized. Use of protected area resources for domestic fuel-wood is a continuing challenge.

***Habitat loss and overexploitation:*** Throughout Armenia, habitat loss caused by grazing, unsustainable forestry, pollution, mining and poorly conceived infrastructure development threatens biodiversity. Unsustainable livestock grazing continues to alter habitats within and in the proximity of the Sevan National Park and wildlife sanctuaries and nature reserves but also other biodiversity hotspots and KBAs/IBAs, the latter under no legal protection.

- **Unsustainable and Illegal Logging-** are still causing habitat degradation and threatening biodiversity. The main drivers are the demand for fuel wood from rural households that do not have access to or cannot afford to pay for alternative forms of energy, and profit-seeking by the timber trade. These drivers are facilitated by a lack of capacity in forest management and supervision bodies to exercise controls.
- **Overgrazing** by livestock threatens steppe, semi-desert, subalpine, and alpine ecosystems. Overgrazing is causing environmental damage in much of the region. Considerable parts of pasturelands in the region are subject to erosion. Sheep grazing on winter pastures of steppes and semi-deserts in the region has significantly increased during the last two decades. Intensive grazing has resulted in reduced species diversity and habitat degradation. Grazing of cattle in forested areas disturbs undergrowth and creates competition for wild ungulates.
- **Poaching-** Overhunting of legally allowed game species and poaching of non-game species, most of which are rare, are widespread in mountain regions. Sometimes, government agencies set quotas for game species without carrying out appropriate research on game numbers and population dynamics. Thus, quotas are often too high to ensure that viable populations of game animals (mostly ungulates) are maintained. Managers of protected areas are not authorized to fight against poaching outside their boundaries. The number of large herbivores in Armenia as well as in the entire Caucasus Ecoregion fell dramatically in the 1990s largely due to poaching and overhunting after the collapse of Soviet Union. Since the start of the 21st century, the populations of the most impacted species, such as Caucasian Red Deer, Bezoar Goat, Mouflon and Brown Bear, have started to recover, supported by the creation of new protected areas. But problems are still lingering and poaching is present outside protected areas.
- **Overfishing** is widespread in Lake Sevan and associated river systems, driven mainly by unsustainable management of fish resources and illegal catch. Fishing quotas are often defined without adequate research of sustainably available resource, leading to the decline of fish stocks. Sevan NP is responsible for regulation of fishery in Lake Sevan but very often is powerless to halt overfishing because of lack of the capacity and manpower. As a result, the illegal catch is many times superior to official fishing quotas (4000 tons against 300

tons, or more than 13 times in 2021, according to the Report of the Institute of Hydroecology and Ichthyology to the Ministry of Environment). Illegal fishing also impacts the tributaries of Lake Sevan, and above all the rivers, where the most important spawning grounds of endemic fish species occur. Globally threatened sturgeon species have been fished to critical levels due to the demand for caviar.

- **Mining** - The Armenia is rich in valuable resources, including gold, copper, manganese and molybdenum. Mining activities and related infrastructure development and operation have become an increasing threat to the biodiversity of the region in recent decades. The expansion of mining is often at the expense of the welfare of local communities who depend on the biodiversity and ecosystem services that mining destroys or severely damages. The main mining threat to the Lake Sevan catchment comes from the Sotq gold mine (Gegharkunik Region, Vardenis proposed project area, the catchment of the River Masrik) and Amulsar gold mine (on the border of Vayots Dzor and Syunik regions, Jermuk proposed project area, the catchment of the River Arpa above the Ketchut Reservoir) from enrichment of gold-bearing ores.
- **Pollution**- The water pollution comes from the use of mineral fertilizers on agricultural lands mainly in forms of mineral Nitrogen (N) and Phosphorus (P). The increase of the content of mineral N and P is the main cause for the periodic blooming of the water of Lake Sevan by toxic Cyanobacteria (also known as Cyanophyta and blue-green algae) with severe consequences for zooplankton and zoobenthos and, probably, to ichthyofauna (for example, the mass depletion and death of whitefish in 1983-1985). Soil contamination in Lake Sevan catchment is caused mainly by agricultural chemicals (pesticides, fungicides, fertilizers, etc.). Seems, the current use of agricultural chemicals is significantly lower than during the Soviet period because of high prices for them, low prices for agricultural products and reduction in cultivated areas. A serious problem is litter dumping. On the territory of Sevan NP, his administration is fighting him with more or less success. Household and construction waste is removed from settlements and often dumped nearby in unauthorized spontaneous dumps. It is difficult to exaggerate the threat of plastic pollution on biodiversity, especially in aquatic ecosystems. Nylon gillnets and crayfish nets catch not only fish and crayfish, numerous cases of death of water birds in them are registered: coot, great grebe, small pochard, great cormorant, diving ducks. Lost plastic nets in fresh water persist for a long time, becoming a trap for everything that can get into them, primarily for endemic fish species that feed in the bottom layer of water: benthic Sevan Ishkhan and Sevan Barbel and detritus feeder Sevan Koghak (Khramulya). Besides, in the lake Sevan basin are several private enterprises, such as Noratus fish processing factory, Shorzha milk factory, Sevan lemonade factory, Tsovazard carpet making warehouse
- **Unregulated water intake** Almost all rivers, the tributaries of Lake Sevan, have a pronounced seasonal character. The rivers of the NE coast of Lake Sevan (Shogh akat and the NW of Vardenis proposed project areas) in the summer often dry up completely. The exception is River Lichk (Martuni proposed project area) which feeds almost exclusively by springs.
- **Small Hydropower Plants:** sthe Lake Sevan basin are 4 operating **Small Hydropower Plants:** 2 in Vardenis proposed project area on Masrik and Makenis rivers, and 2 in Martuni proposed project area on Argichi and Vardenik rivers. An obligatory element of their design should be fish passes, but the distance from the place of water sampling does not take into account; besides, the sanitary minimum of water after sampling is very small (10% of the average [needs to be checked]), which does not take into account the needs of endemic fish species. The reservoir constructed above the Argichi SHPP partially flooded the meanders of the upper river, the main habitat of the river form of the Sevan Koghak and the unique endemic form of the Brown Trout. Aas part of Lake Sevan catchment, a large number of SHPPs are operating on the River Arpa and its tributaries in Vayots Dzor Regions, as well as several on Vorotan River and its trubutaries in Syunik Region. There are a few small **Solar Power Plant**, of which the largest is located next to the Artanish village in the Shoghakat proposed project area. Plans exists for the construction of Masrik 1 Solar Power Plant (SPP) by the FRV MASRIK Closed Joint Stock Company. The detailed Environmental and Social Impactn Assessment report on construction and exploitation is available.
- **Unregulated tourism activity:** Certain areas of natural beauty in Sevan Basin and beyond have become increasingly popular local tourism destinations, and despite the tourism decline during the COVID-19 pandemic, the sector is slowly recovering. The impacts of these activities are evident. Tourists regularly leave large amounts of garbage near favorite picnic spots and often ignite wildfires. Trees are unsustainably harvested for fuel wood. These impacts are especially pronounced in Sanctuaries where regulations for tourism management, incentives for proper behavior, and appropriately scaled infrastructure to direct and control tourism services are lacking.

**Climate Change:** It represents a significant and overarching threat in the country, especially on the ecological functionality of critical habitats within PAs but also outside the protected areas, where species and critical habitats are not benefiting from any legal protection.

Climate change will likely alter the spatial requirements of most species. If these species will be able to access required habitats, elasticity must exist within the landscape managed specifically for biodiversity. Armenia's current network of protected areas does not contain adequate representation and/or quantity of habitat types and law enforcement is problematic event within protected areas systems. The system does not include ecological corridors or areas that link various conservation areas. As a result there is limited resilience to allow adaptation and responses to climate change for long term species survival.

Ongoing forest degradation is causing biodiversity loss, and deforestation is damaging the ability of forest ecosystems to withstand and recover from further pressures such as the adverse effects of climate change.

According to the Fourth National Communication under the UNFCCC, climate change will lead to the expansion of the desert, semi-desert, and arid steppe areas due to the vertical displacement of the upper borders. Moreover, the steppe will move 250-300 m upwards in the direction of forest ecosystems, at the same time the movement of the forest zone will reduce the area of meadow ecosystems. As a result, there will be significant changes in the composition and structure of ecosystems. More than 17,000 hectares of forest may be lost due to unfavorable forest development conditions. Changes in pasture productivity levels are possible in the country, the total area of pastures and their productivity is expected to be reduced by 4-10%, the area of the sub-alpine zone will be reduced by 19%, and the area of the most valuable and highest-productivity alpine zone is reduced by 22%, as well as there will be a 7-10% reduction in pasture and grassland productivity and grasslands biodiversity.

In the humid forests of the central mountain belt, gradual xerophytic processes will take place. The transition of meadow-steppes to steppe ecosystems is likely to happen more often as climate change will induce a gradual humidity decrease. In the conditions of forecasted climate change, due to the expected low humidity and less precipitation, the xerophytic vegetation of the southern slopes and the stands of the lower forest zone will be more vulnerable. Under such conditions, xerophilous plant species will begin to actively penetrate into forest ecosystems, reforestation processes will deteriorate, the annual growth rate of trees will decrease, which will lead to the replacement of forest ecosystems with light forests and then semi-deserts. In general, xerophytization is expected, which will lead to a significant change in the structure and species composition of existing ecosystems, it will intensify the degradation of soils and natural pastures. The current level of degradation of lands and natural ecosystems in the country, as well as the emergence and deepening of problems with possible scenarios in the coming years, can be a serious challenge for the country's economy, particularly in terms of food security.

From this perspective LDN implementation through tailored Sustainable Land Management (SLM) measures will contribute to a significant extent to maintaining soil productivity and nutrients. A land degradation neutral region/landscape is also a landscape with improved biodiversity in arable and non-arable agricultural land. An LDN compatible landscape and integrated land use planning, will also protect the biodiversity at risk of extinction from the pressure of deforestation or clearing/transforming new land for agriculture, mining or other development.

### **Climate trends**

Armenia's climate is influenced by the Caucasus Mountains, and ranges from dry sub-tropical to cold alpine. The average annual temperature (1960-2015) is 7.6°C, varying from -8°C in the high mountains to 12 to 14°C in low valleys. The coldest temperatures occur December to February (ranging from -3 to -7°C), and warmest temperatures occur in July and August (averaging about 20°C); though, in low-land areas temperatures can reach 24 to 26°C in July and August, and in high alpine regions temperatures typically do not exceed 10°C. Armenia's average annual precipitation is 524 mm (1960-2015), over 40 percent occurring April through June; with average annual precipitation of 200 to 250 mm in low-land areas, and 800 to 1,000 mm at higher altitudes. The projected changes by 2050 include: (i) An increase in average annual temperature of 1.6°C to 2.2°C; (ii) An increase in the number of "hot" days and nights and a decrease in the number of "cold" days and nights; (iii) Inconsistent changes in average annual precipitation, but likely reductions of -7 to -10% in monthly average precipitation

June to September; (iv) An increase in the number of consecutive dry days by 7 to 11 percent; (v) An increase in extreme rainfall days by 22 to 32 percent.<sup>71</sup> The main data source for the World Bank Group's Climate Change Knowledge Portal (CCKP) is the Coupled Model Inter-comparison Project Phase 5 (CMIP5) models, which are utilized within the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), providing estimates of future temperature and precipitation. Four Representative Concentration Pathways (i.e. RCP2.6, RCP4.5, RCP6.0, and RCP8.5) were selected and defined by their total radiative forcing (cumulative measure of GHG emissions from all sources) pathway and level by 2100. The RCP2.6 and RCP8.5, the extremes of low and high emissions pathways, are the primary focus. RCP2.6 represents a very strong mitigation scenario, whereas RCP8.5 assumes business-as-usual scenario. For Armenia, these models show a trend of consistent warming across all seasons. However, precipitation for Armenia continues to be highly variable. Projections indicate an increase in average annual precipitation by mid-century; yet a decrease in precipitation is expected across summer months. This indicates increased incidence of heavy precipitation events. Eastern and southern areas are expected to receive the least amount of precipitation. The model therefore estimates an average warming in Armenia under the highest emission pathway (RCP8.5) is an average temperature increase of 2.8°C by the 2050s and 5.8°C by the 2090s. Ensemble estimates of warming under the lowest emission pathway (RCP2.6) also presents an average temperature increase of 1.2°C by the 2050s and maintain through the end of the century. Both of these temperature increases represent greater rates of increase than the global average. By the 2090s, temperatures are projected to have increased around 35% to 40% higher than the global average. Under all scenarios, except for the lowest emission pathway (RCP 2.6), the number of summer days is expected to increase, and the number of frost and ice days are expected to fall dramatically by the end of the century.

Armenia's climate can be described as highland continental, with large variation between summer highs (June to August) and winter lows (December to February). The country also experiences large climatic contrasts because of its intricate terrain, and the climates range from arid to sub-tropical and to cold, high mountains. Summer highs in Armenia's capital Yerevan average around 30°C–33°C while the average in winter is 1°C–3°C. The more mountainous regions experience lower average temperatures and prolonged periods of snow cover. The average annual precipitation is low at 526 millimetres (mm). Precipitation intensity is greater in Armenia's high-altitude regions with May and June the wettest months. For Armenia, altitude is the strongest controlling factor determining the spatial distribution of temperatures and precipitation in Armenia. Sub-zero average temperatures are common in Armenia's mountain ranges while its highest average temperatures are experienced in the relatively low-lying western plains. Similarly, Armenia's highest peaks may receive up to 1,000 mm of annual precipitation while precipitation can be as low as 200 mm in the western plains. Armenia's NC4 reports that it experienced an average temperature rise of 1.23°C between 1929–2016. This historical rise in temperatures has resulted in the rapid shrinking of the glaciers in Armenia's mountain regions, with spatial extents retreating at around 8 m per year.<sup>19</sup> Trends suggest climate variability is increasing and in 2018, Yerevan experienced a new record July temperature, reaching 42°C. Armenia's NC4 reported a 10% reduction in average annual precipitation volume was documented over the period 1935–2012.

#### Extreme precipitation, flood and landslide

Heavy rainfall events are known to trigger landslides and floods in rural areas of Armenia, often affecting poorer and more isolated rural communities. River levels in Armenia are particularly variable, and high flows often hit communities without forewarning, resulting in flood disasters. Flooding can result in damage to subsistence agriculture and increase the incidence of poverty and health issues. Floods also represent a risk to national economic productivity particularly when affecting the capital city, Yerevan. While most climate models project a small increase in the intensity of extreme precipitation events, uncertainty remains in precipitation projections and model ensemble estimates. The general shift in the seasonality of precipitation away from the summer months, combined with the projected loss of many of Armenia's glaciers will likely intensify extreme events and highlight a need for disaster risk reduction measures. However, research and development in the climate modelling arena is needed to support decision makers and planning efforts, specifically more reliable downscaled modelling and additional work will be needed in order to better understand and map rural exposure and vulnerability.

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<sup>71</sup> USAID, Armenia Climate Risk Profile

### Specialy Protected Nature Areas (SNPAs) in the project regions

**Table 3. Protected area and associated sanctuaries in Sevan Basin landscape (targeted regions)**

1	2	3	4	5
Name of SPNA	Government decree № Establishment year	Objective	RA. regions	Occupied area (ha)
<b>NATIONAL PARKS</b>				
<b>Sevan</b>	ASSR Central Committee of Communist Party of Armenia and Council of Ministers, March 14, 1978, №125	Conservation of Lake Sevan ecosystems	Gegharkunik	147,456.0

1	2	3	4	5
<b>STATE SANCTUARIES</b>				
<b>Open forests of Herher</b>	ASSR Council of Ministers, September 13, 1958, № -341	Conservation of relic juniper open forests	Vayots Dzor	6 139.0
<b>Jermuk forest</b>	ASSR Council of Ministers, September 13, 1958, № -341	Conservation of mountain forests of <i>Quercus macranthera</i> and specific fauna	Vayots Dzor	3 865.0
<b>Jermuk hydrological</b>	RA Government, September 17, 2009, №1063-N	Conservation of mineral hot spring feed basins	Vayots Dzor	17 370.66
<b>Juniper open forests</b>	ASSR Council of Ministers, September 13, 1958, № -341	Conservation of <i>Juniperus excelsa Juniperus foetidissima</i> and <i>Juniperus oblonga</i> open forests	Gegharqunik	3 312.0
<b>Yeghegnadzor</b>	ASSR Council of Ministers, November 16, 1971, №375	Conservation of forest landscapes and fauna specific to them	Vayots Dzor	4 200.0

### **Biodiversity values in the project targeted regions**

(a comprehensive list of species for the PAs and sanctuaries is provided in the Biodiversity and PA Report compiled at PPG)

### **Key Biodiversity Areas (KBAs) and Important Bird and Biodiversity Areas (IBAs)**

(The PPG information base was complemented by the recent revision of Armenia's IBA<sup>72</sup> done by BirdLinks and Ministry of Environment specialists, excerpts of its analysis included in the below section)

The main KBAs and IBAs in the project targeted communities some of them overlapping partially or totally with the State Sanctuaries are as follows:

- Lake Sevan KBA/IBA and Ramsar site (IBA criteria A1, A4i, B1i)
- Sevan Ridge KBA
- Gndasar KBA/IBA (IBA criteria B1iv, B2)
- Jermuk-Eghegis KBA including Jermuk IBA (IBA criteria A1, B2, B3) overlapping with Jermuk Sanctuaries
- Arpa KBA including Noravank IBA (IBA criteria A1, B2)

<sup>72</sup> <https://medwinpublishers.com/IZAB/revision-of-important-bird-and-biodiversity-areas-of-armenia.pdf>



Fig. 3. KBAs/IBAs in the project targeted regions (courtesy WWF Armenia)

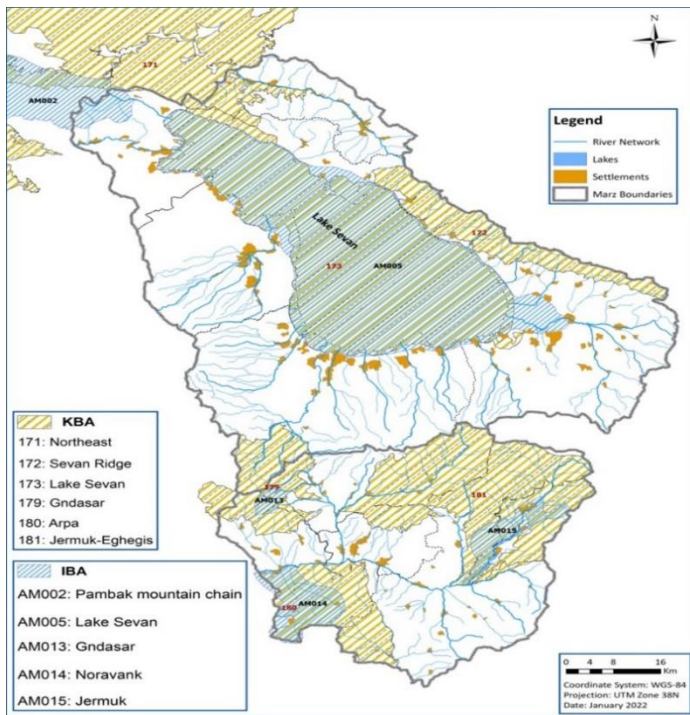
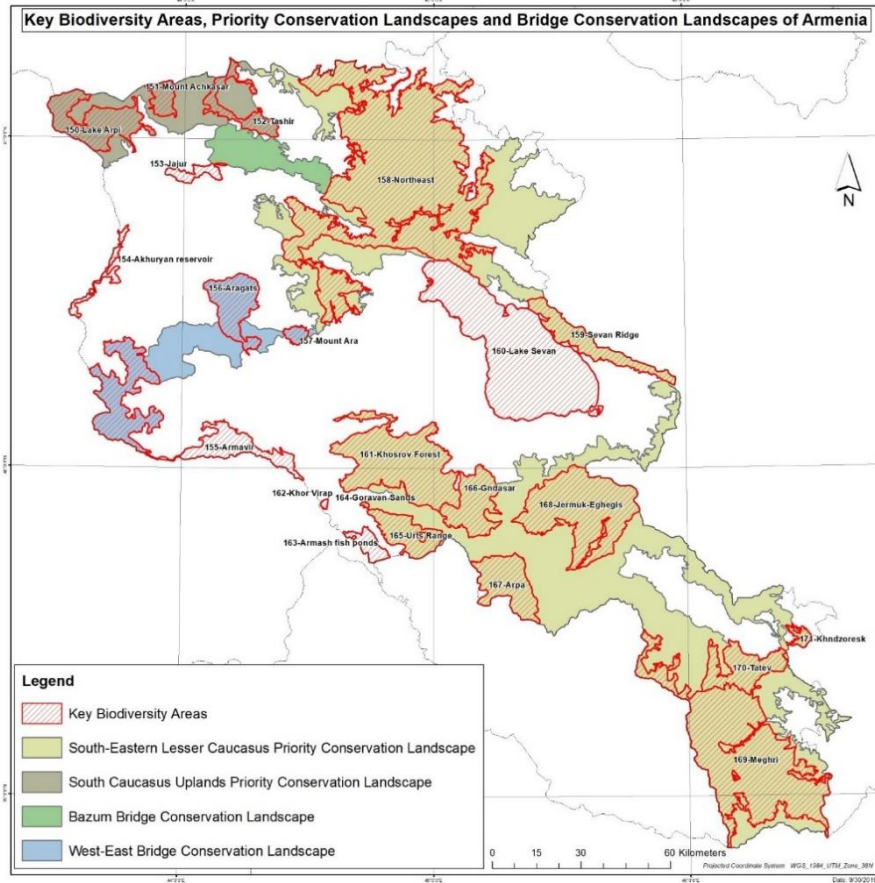


Fig. 4. KBAs and Eco-corridors (courtesy WWF Armenia)



**Sevan National Park**  
**Sevan KBA/IBA and Ramsar site**  
**Sevan Ridge KBA**

Established in 1978 on 150,100 ha it is located in Gegharkunik region and entirely overlapping the Sevan Ramsar area. The conservation purpose is the protection of fresh water reserves of the lake, fish stocks, natural and historical-architectural complexes; recreation and tourism activities. Sevan National Park encompasses Lake Sevan and the adjacent grounds (which used to be covered by water) up to the highway surrounding the lake. The national park is surrounded by a buffer zone, incorporating the slopes of nearby mountain ranges (Areguni, Sevan, Gegham, Vardenis and Pambak) up to their watersheds. Consequently, the national park along with the buffer zone incorporates Gegharkunik Marz (4900 km<sup>2</sup>) with its numerous settlements and 270,000 population.

The Sevan National Park was established in 1978 (ArmSSR Council of Ministers Decree No. 125, March 14, 1978). Its ultimate goal was to protect the lake. National Park includes the lake and surrounding areas (24,800 ha) which were under water several decades ago. Twenty-eight large and small rivers including the Argichi, Masrik, Gavaraget, Karchaghpyur (Makenis), Vardenis, Dzknaget and others flow into the lake. Only the Hrazdan (Zangu) River flows out of the lake. After the establishment of Soviet rules in Armenia, the Lake Sevan became crucial for the development of economy and energy sector. It was decided to use the age-old water resources of the lake and to drain Big Sevan in 50 years. The disastrous project was launched in 1933. The Sevan-Hrazdan cascade including six hydro-power plants was built to generate power and irrigate agricultural lands. Before that Lake Sevan was a young oligotrophic lake with pure, transparent and ecologically "clean drinking water". Like all the other freshwater lakes in the world it was expected to age very slowly (due to natural eutrophication). Nevertheless, the consequences of Soviet era destructive water exploration the lake shore-line receded leaving bare areas and white ground previously covered by water. The former Island Sevan turned into a peninsula, Lake Gilli in the Masrik plain dried up leaving only a small peat area. The fast aging of Lake Sevan started. The increase of organic matter in the lake, namely fixed nitrogen and phosphorus compounds as results of economic activity contributed to the aging of the lake. In 1963 the eutrophication or swamping of the lake began. Water "blooming" appeared due to drastic increase of blue-green algae and bacteria leading to the change of water color and transparency. In 1975-1978 the lake was under intensive eutrophication. The risk of swamping became alarming. The Lake Sevan problem emerged as the anthropogenic disturbance of the natural balance of the lake ecosystem.

Lake Sevan is a Ramsar site. Designated in 1993 the Lake Sevan Ramsar Site covers 490,231 ha situated in Gegharkunik region and incorporates the entire hydrological system of the lake including its watershed, tributaries and outflow. About 1,600 plant species have been recorded here, including rare and endemic species. The site is important for numerous species of waterbirds, nesting, feeding and/or resting here, several of which are endangered in Armenia.

The lake Sevan PA reserve zone of 3,700 ha consists of six reserve areas - Artanish, Vardenis, Lichk, Noratus and Norashen as well as other small sanctuaries stretching along the beds of large rivers.

**Natural Reserves within Sevan National Park**

There are 6 reserve sites in the park reserve zone: Artanish, Litchq, Noratus, Gilli, Karchaghbyur, Norashen and 10 sanctuaries.

"**Norashen**" is located in the north-western part of the national park and covers an area of 839 hectares, 341 hectares of which is the land area and the water area is 498 hectares. The total length of the border is 12.7 km. The reserve area is about 3.9 km long and 3.0 km wide. The purpose of the reserve is to ensure the normal life and reproduction of birds (particularly the Armenian gull, which is the only endemic bird nesting here).

"**Litchq-Argichi**" is located in the south-western part of the national park, in the estuarine sections of the Tsakkar, Litchk and Argichi rivers, and covers an area of 1175 hectares, of which the land area is 482 hectares, and the water area is 693 hectares. The total length of the border is 13.3 km. The reserve area is about 3.8 km long and 3.7 km wide. The purpose of the reserve is to ensure the preservation of wetland and aquatic vegetation of the Lichk mineral springs, the Argich and Litchq rivers at the mouth of the Argich and Litchq rivers, as well as the breeding of valuable and rare fish species, such as Sevan trout.

**“Gilli”** is located in the south-eastern part of the national park, in the estuaries of the Gilli Canal, Masrik and Geghamasar rivers, and covers an area of 1,810 hectares, 1,325 hectares of which is the land area and the water area is 485 hectares. The total length of the border is 23.3 km. The reserve area is about 10.4 km long and 1.8 km wide. The purpose of the reserve is to protect the estuaries of the Masrik and Geghamasar rivers for the development of valuable and rare fish species, as well as the protection of nearby swamps as a bird nest.

**“Artanish”** is located in the eastern part of the national park, covering the Artanish Peninsula and the part adjacent to the Artanish Lagoon Peninsula. The area covers 3640 hectares, 2142 hectares of which are land and 1498 hectares are water. The total length of the border is 25.9 km. The reserve area is about 11.7 km long and 7.8 km wide. The purpose of the reserve is to ensure the diverse relict vegetation of the Artanish Peninsula, juniper sparse forests, as well as rare animals (rarely spotted brown bear and bezoar goat but also noble deer, boar, etc.). In the territory of the national park there are also "Gavaraget" and "Juniper-oak relict" sanctuaries with lower protection regime. They have all the necessary resources for tourism and are in demand by lovers of active rest. Appropriate eco-tourism infrastructure would be needed for the efficient use of the premises.

**“Gavaraget”** is located on the shores of the Noratus Peninsula in the national park and in the Gavaraget estuary. It covers an area of 845 hectares, 552 hectares of which is the land area and the water area is 293 hectares. The total length of the border is 26.4 km. The area of the sanctuary is about 7.5 km long and 0.5-3.5 km wide. The purpose of the sanctuary is to ensure the preservation of residual ponds in the Gavaraget estuary and bird nests on the coast of the Noratus Peninsula, as well as the spawning and development of valuable and rare fish species.

**“Juniper-oak relict”** is located in the eastern part of the national park and extends from Daranak village to Jil village, about 18 km long and 1.5-3.8 km wide. The sanctuary covers an area of 1807 hectares. The area is fragmented, there are 5 sections of different sizes, the total length of the borders is 55.0 km. The purpose of the sanctuary is to protect the sparse juniper and oak forests on the south-western slopes of the Sevan Mountain Range.

The water-loving vegetation (vascular plants) of Lake Sevan is very rich. 9 out of 14 species of aquatic flowering plants growing in Armenia 19 out of 36 species are found in the lake. Particularly well represented is the genus *Potamogeton* sp. and other aquatic plants such as: *Ceratophyllum demersum*, *Myriophyllum verticillatum*, *Ranunculus kochii*, *Zannichellia palustris* and others. The coastal area surrounds the lake in the form of a narrow strip with artificial plantations of pine (*Pinus* sp.), poplar (*Populus* sp.), conifer (*Elaeagnus* sp.), sea buckthorn (*Hyppophae rhamnoides*) and other species. The grass cover entails sand-adapted species such as: *Lactuca tatarica*, *Artemisia austriaca*, *Cleome iberica*, as well as the *Potentilla* sp., *Carex* sp. and *Veronica* sp. plant species.

Artanish Peninsula is the largest terrestrial and one of the best conserved areas of the national park. It is regarded as an exceptional monument of nature and was designated as a reserve area. Slopes of different expositions at altitudes of 2100-2200 meters with an area of about 2,500 ha are covered by unique vegetation. The southern rocky slope with caves is of particular interest. The grounds previously covered by water are now covered by artificial forests (pine, poplar, sea-buckthorn etc.). At higher altitudes there are juniper stands with the dominance of juniper (*Juniper polycarpos*) as well as the mixture of rose (*Rosa* sp) barberry (*Berberis* sp.), spirea (*Spiraea* sp.), astragalus (*Astragalus* sp.) and prickly thrift (*Acantholimon* sp.). The meadow vegetation of the higher zone is rich in endemic species. The shores of the Gulf of Artanish are the only habitat of sedge species *Carex secale* (Willd. ex Wahlenb.) in Armenia. On the south-south-western shores of Lake Sevan (Geghama-Vardenis mountain ranges) at the altitudes of 1900-2200 m there are mountain steppe communities, which are dominated by *Festuca valesiaca* and *Koeleria cripata*. *Astragalus* and *Thymus* species, threatened by overexploitation. At higher altitudes, the steppes are replaced by biodiversity rich mountain meadows where *Poaceae* vegetation is predominant, with species such as *Festuca valesiaca*, *Festuca ovina*, *Carex humilis*, and *Poa pratensis* grow. The vegetation of the national park above 2300 m is gradually changing to subalpine meadows. The most common representatives growing here are *Koeleria cristata*, *Poa alpina*, *Hordeum violaceum*, *Bromus variegatus*, *Scabiosa caucasica*, *Scabiosa caucasica*, *Scabiosa caucasica* *Campanula glomerata*, various types of sorrel (*Betonica macrantha*) different species of clover (*Trifolium* sp). The heights of 2700-3200 m are covered with alpine meadows and carpets, with species such as *Campanula tridentata*, *Taraxacum stevenii*, *Veronica gentianoides*, *Festuca ovina* and *Carex tristis* present.

In some mountain gorges, steppe shrubs are found with the species *Rosa spinosissima*, *Rosa canina*, and *Spiraea crenata*. The steppe shrubs are well expressed on the north-eastern shores of the lake, on the Sevan and Areguni mountain ranges and on the Artanish peninsula. The species found here are *Sorbus kuznetsovii*, *Sorbus aucuparia*, *S. hajastana*, *S. graeca*, *Rosa spinosissima*, *Rosa canina*, *Spiraea crenata*, *Crataegus orientalis*, *Salix caprea*, etc. The lower part of the north-eastern shore of the lake, Areguni Mountains the north of the lake (Sani mountain range) is covered with tragacanth gilded astragalus *aureus*, *A. microcephalus* and *A. laguna* with a predominance of subspecies. Above 2000-2100 m, residual oak forest (*Quercus macranthera*), junipers with dry shrubs, steppe grass, as well as meadow, meadow-steppe vegetation are widespread.

Juniper sparse forests occupy large areas near the villages of Jil, Daranak, Babajan and Artanish. *Juniperus polycarpus* (*J. oblonga*) species, which are found both in single and mixed trees, predominate here. The junipers are accompanied by other shrubs, such as spirea *Spiraea crenata*, *S. hypericifolia*, *Sorbus hajastana*, *S. graeca*, The Cossack juniper (*Juniperus sabina*), compressed juniper (*Juniperus depressa*) species occupy some areas in the subalpine and alpine zones, and sometimes even in the steppe zone. Intrazonal rocky vegetation grows in sheds, on rocks and cliffs. It is quite common in the basin of Lake Sevan and is often found in some parts of the highlands. Wetland and swam areas are more frequent in the southern part of the lake. There are small swampy areas near the villages of Tsovinak, Noraduz, Zolakar, Martuni, Lichk, where *Carex hirta*, *Cyperus longus*, *C. fuscus*, and *Schoenoplectan* clusters. The sand area around the lake is mostly covered with seeds, some parts are swampy. The composition of the flora of wetlands is rich in many weed species. Areas freed from water (due to the reduction of the lake's water level) are covered with artificial plantations (pine, sea buckthorn, etc.). Some steppe-swampy areas have been preserved adjacent to the formerly cultivated lands near Lake Gili.

The recreational zone occupies 4200 ha of coastal area. There are various facilities functioning here such as guest houses, hotels, private recreational facilities and others located around the whole shoreline concentrated more in the western part of the lake. Convenient beaches, historical-architectural and ancient ethnographic monuments as well as scenic landscapes provide good opportunities for excursions and tourism. The economic zone incorporates areas for fishery and forestry activities. At present, licensed fishing of Sevan white fish (*Coregonus laveratus*) and goldfish (*Carassius auratus*) is allowed. River crayfish (*Astacus leptodactylus*) farming is being developed. The lake flora includes algae (*Chara*, *Spirogyra*, *Zygnemia*, *Euglena*, *Volvox*, *Oscillaria*, *Diatomeae* etc.) as well as other aquatic flowering plants which occupy their own niche - the littoral zone of the lake down to several meters in depth.

### Flora and Fauna

With the support of various NGOs, academic institutions and volunteers, Lake Sevan National Park has been extensively surveyed. Approx. 1,500 species of vascular plants have been recorded in Sevan National Park; 70 well studied mollusks; 220 species of beetles and 55 species of butterflies; 4 species of amphibians, 16 species of reptiles and 9 species of fish of which 3 are endemic. The Sevan trout (*Salmo ischchan*) is an endemic fish species of Lake Sevan and it is related to the brown trout. The fish is endangered due to the various habitat competitors introduced in the lake during the Soviet period, and due to the lake water level change and it is currently listed under the Red Data Book of Armenia. There are four sub-species of Sevan trout, distinguished from each other by a number of morphological traits.

Lake Sevan is a KBA/IBA and Ramsar site. Birds therefore make another important and rich group of the lake fauna. According to data published in 2000 by M. Adamyan there are more than 260 species of birds of which 160 are regularly nesting in the Park. The recent (2022) IBA revision in Armenia cited " 291 species recorded here of which 112 species are breeding and 179 species have been recorded on migration and during wintering and Lake Sevan plays an important role as a stopover point for migratory and wintering birds. The key breeding species are Turtle Dove *Streptopelia turtur* (A1), Saker falcon *Falco cherrug* (A1), Common Pochard *Aythya ferina* (A1), Marbled Teal *Marmaronetta angustirostris* (A1), Ferruginous pochard *Aythya nyroca* (B1a), Northern Lapwing *Vanellus* (B1a), and Armenian gull *Larus armennicus* (A4, B1b, B3a). During migrations, the site hosts a wide variety of waterbirds, including Lesser White-fronted Goose *Anser erythropus* (A1), the number of migrants is reaching the threshold of criteria B3b" (from the Revision of Important Birds and Biodiversity Areas of Armenia 2022; BirdLinks and Ministry of Environment).

Bird habitats including Lake Sevan, river mouths and littoral swamps suffered badly from the decrease of the lake level mountain- steppe vegetation have survived only on the hill top of the former island.

As for mammals, common species in the mountain steppes of Sevan Park are e.g. red deer in the north, rabbit, fox, marbled polecat, mink and wolf (among others). Extremely rarely can wild boar, brown bear and lynx be seen. Bezoar Goat has not been recorded in recent years, although the species has historically inhabited the region, and it is assumed that a very small population/cluster still exists on elevated mountain slopes in the Artanish peninsula.

#### **Gndasar IBA/KBA (including the upper reaches of Argichi River)**

The site is located on the slopes of Vardenis Mountain Ridge in elevation range from 1894 to 2873 m above sea level. It was assessed as IBA in 2002. The area of IBA belongs to the community and about 40% of it is given to a private company as a long-term rent. The IBA is located at the southern slopes of the ridge, and its lower part is covered by shrublands, alternated by arid mountain steppe areas. With increase of elevation the landscape changes towards grassy mountain steppe, then to meadows, and then to sub-alpine carpets. The rigorous terrain of Gndasar IBA is rich with rocks, cliffs, and screes, and at the middle it is cut by several deep canyons. While in the lower part the scarce juniper woodlands are found, numerous gorges are hosting remains of deciduous woodlands.

There are 123 species of birds recorded in the area, among which 84 are breeding and 39 occur during migration or found in breeding season having this site as part of their foraging range [4]. Gndasar area is important for breeding populations of high mountain species, such as Caspian Snowcock *Tetraogallus caspius* (B1b), Alpine Accentor *Prunella collaris* (B1b), Crimson-winged Finch *Rhodopechys sanguineus* (B1b), and White-winged Snowfinch *Montifringilla nivalis* (B1b). Soaring migrants, like storks, cranes, and raptors, sometimes make congregations here, occasionally reaching the threshold of criteria B3c.

The area is used largely as a pasture for nomadic grazing by surrounding communities. A smaller portion is allocated for haymaking. The area is included in the public hunting lands. At the lower elevation, Gndasar IBA's natural grasslands suffer from the intensive pasture use, which causes overgrazing with all the subsequent issues of soil erosion, which is particularly dangerous at this steep area. Additional threats come from poaching, since the level of hunting control is substantially low.

The area is recognized as KBA. The Gndasar IBA is mentioned to be protected under Lake Sevan National Park but there is no overlap between these sites. The site covers just a small portion of the subalpine area, leaving a significant portion of the high-mountain species outside. Therefore, it is recommended to slightly expand the borders of the IBA, to secure fuller involvement of the subpopulations of the subalpine birds.

For habitat and species protection, it is important to officially designate the area as the Emerald Site, then to develop its management plan, which can consider habitat friendly grazing schemes and support development of wildlife tourism in this area, thus providing the necessary support to the surrounding communities and provoke development of local hospitality services in accordance to the ecotourism standards. The income from wildlife tourism can be used for guarding the area, thus securing protection of endangered species of birds and mammals from poaching.

#### **Juniper Open Woodland State Sanctuary**

The "Juniper" State Sanctuary was established by the decision of the Armenian SSR IP No. 341 of September 13, 1958. It is located in Gegharkunik region of the Republic of Armenia in Areguni and Sevan Mountain ranges. It stretches over 3,312 hectares. "Juniper" State Sanctuary is under the jurisdiction of "Sevan" National Park SNCO of the Ministry of Environment, it is included in "Sevan" National Park as a sanctuary.

The purpose of establishing the "Juniper" State Sanctuary is to preserve the natural reproductive juniper sparse forests, their critical valuable habitats, and conservation of natural ecosystems. The mountain landscape with sparse juniper and oak forests was historically inhabited by Bezoar Goat, no longer spotted here in even years. Despite the existing laws and regulations that confer a strictly protected regime of the area, agriculture encroaches on the sanctuary, illegal grazing in the adjacent pastures and sparse forests is a threat to its biodiversity.

### **Her-Her State Sanctuary**

"Her-Her" State sanctuary was established in 1958 by the Soviet of Ministers of the Armenian SSR. September 13, No. 341. It is located on the right tributary of the Arpa River in the VayotsDzor region of Southern Armenia, in the Her-Her basin, at an altitude of 1400-2000 m, occupies an area of 6139 hectares.

"Her-Her" state sanctuary is under the jurisdiction of "Yeghegnadzor" forestry branch of "Hayantar" SNCO of the RA Ministry of Environment.

The landscape is dominated by juniper dry sparse forests with *Juniperus oblonga* and *Juniperus polycarpus* and various species of the pear (*Pyrus sp*) genus which dominate in the broad-leaved juniper ecosystem. The deforested areas are covered with dry steppe vegetation. Very few species of plants grow in the vegetation of the sanctuary, including a number of wild relatives of cultivated plants, such as Ararat wheat (*Triticum araraticum*), *T. boeoticum*, *Secale vavilovii*, lentils *Lens orientalis*), spinach (*Spinacia tetrandra*), ten species of pear (*Pyrus sp.*), including the species of narrow endemic pear of Armenia (*Pyrus gergerana*). The sanctuary does not have a dedicated management staff unit, management plan, charter and description of boundaries approved by the government. According to the legislation, the management is provided by the "Yeghegnadzor" forestry branch of "Hayantar" SNCO of the RA Ministry of Environment, it is unclear however how successful the implementation of monitoring and law enforcement is in the field.

### **Jermuk Forest State Sanctuary**

Jermuk Forest State Sanctuary was established in 1958 by the Council of Ministers of the Armenian Soviet Socialist Republic of the Armenian SSR. September 13, No. 341. It is located in the upper reaches of the Arpa River in the Vayots Dzor region of Southern Armenia, at an altitude of 1100-2800 m and occupies an area of 3865 hectares. Jermuk Forest State Sanctuary is under the jurisdiction of "Yeghegnadzor" forestry branch of "Hayantar" SNCO of the RA Ministry of Environment.

The landscape is represented by oak forest (*Quercus macranthera*) with a typical species composition of Vayots Dzor mixed forests. Small areas are covered with sparse forests, dominated by different types of wild pear species as well as rocky habitats and secondary meadows. A number of 14 species of the genus (*Pyrus*) have been found in the sanctuary; a number of very ornamental species are also present such as *Nectaroscordum tripedale*, *Sambucus tigranii*, *Gladiolus kotschyanus*, *Lilium armenum*. The sanctuary does not have a management plan, charter and description of boundaries approved by the government. As with the case of Her-Her Sanctuary, the management is provided by the "Yeghegnadzor" forestry branch of "Hayantar" SNCO of the RA Ministry of Environment. The main threats include deforestation, illegal land use and mining.

### **Jermuk Hydrological State Sanctuary**

Jermuk Hydrological State Sanctuary was established by the Decision of the Government of the Republic of Armenia No. 1063-N of September 17, 2009, on natural ecosystems of the Arpa River upstream catchment area, including biodiversity, unique natural monuments, hot springs of mineral water. For conservation, natural reproduction. It is located in the area of the upper stream catchment area of Arpa River of Vayots Dzor region, from the source to the hydrological point of "Jermuk" sanatorium, at 1100-2800 m altitude.

Jermuk Hydrological State Sanctuary is under the jurisdiction of the "Reserve Complex" SNCO of the RA Ministry of Environment. The main purpose of the sanctuary is to protect the hot springs of mineral springs.

The size of Jermuk Hydrological State Sanctuary is 17370.66 hectares.

The objects of protection of Jermuk Hydrological State Sanctuary are the hot springs of natural mineral water, natural ecosystems of the area, including biodiversity. The area belongs to the Daralagyaz floristic region of Armenia. The main type of vegetation of the sanctuary - alpine meadows and wetlands. The Sanctuary has a charter; description of boundaries and it is under the jurisdiction of the Ministry of Environment but with no management plan and dedicated management staff due to lack of financial resources.

### **Yeghegnadzor /Yeghegis/ State Sanctuary**

Yeghegnadzor State Sanctuary was established in 1971 by the Soviet of Ministers of the Armenian SSR by the decision of November 16, No. 375. It is located on the right tributary of the Arpa River in the VayotsDzor region of Southern Armenia, in the basin of the Yeghegis River, at an altitude of 1200-2800 m. Yeghegnadzor State Sanctuary is under the jurisdiction of "Yeghegnadzor" forestry branch of "Hayantar" SNCO of the RA Ministry of Environment. The size of Yeghegnadzor State Sanctuary is 4200 hectares.

The main purpose of the sanctuary is to preserve the natural, scientific, historical, cultural and economic value of the sanctuary, its components - rare, valuable animals - bezoar goat, Armenian mouflon, East Asian leopard, as well as the natural preservation and safe use of a large variety of wild wheat.

The landscape is rich with diverse vegetation communities. There are steppe communities: with *Stipa capillata*, *S. pennata*, *S. pulcherrima*, *Festuca valesiaca*, *Bothriochloa schaeum* Juniper, juniper polycarpus), juniper communities with *Juniperus oblonga*, steppe shrubs with *Spiraea hypericifolia*, *Berberis orientalis*, *B. iberica*, *B. vulgaris*, *Rosa* sp, etc., forest remnants of steppe subforest: *Prunus divaricata*, *Euonymus latifolius*, *Fraxinus excelsior*, *F. rotundifolia*, wild pear (*Pyrus* sp.) etc. About 10 species of wild pears grow here.

The sanctuary does not have a management plan, charter and description of boundaries approved by the government. Protection is provided by the "Yeghegnadzor" forestry branch of "Hayantar" SNCO of the RA Ministry of Environment.

The **Jermook IBA** area belongs to local communities, while the rest belongs to Jermuk Hydrological, Jermuk Forest, and Herher Open Woodland State Sanctuaries. The habitats of the IBA are changing with increase of elevation from semidesert, passing through juniper woodlands, getting into deciduous oak dominated forest, and eventually being transferred into subalpine carpets. Along its way, the Arpa River flows in a canyon, formed by high cliffs, rocks and screes. There are 170 species of birds recorded in the area, among which 125 are breeding and 45 occur during migration or found in breeding season having this site as part of their foraging range. Jermook area is important for breeding populations of several birds of prey, such as Egyptian Vulture (A1), Bearded Vulture (B1a), Golden Eagle (B1b), Peregrine Falcon (B1b), and Eagle Owl *Bubo* (B1b). Also, the area is one of the few sites in Armenia, which attracts Black-throated Thrush *Turdus atrogularis* in winter<sup>73</sup>.

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**Noravank IBA (included in Arpa KBA)** is located on the slopes of Vayk mountains from Arpa river at about 935 m above sea level in Vayots Dzor region. The landscape of the area varies from riparian shrubland, through semidesert and juniper woodland, to arid mountain steppes and mesophilic meadows. The area is alternated with two major canyons, with cliffs of up to 200 m high. The riparian shrublands are dominated with *Populus*, *Rubus*, and *Phragmites*; the semideserts are represented with *Atraphaxis*, *Amygdalus*, and *Rhamnus pallasii*; the juniper woodlands are dominated by *Juniperus polycarpus*, *Pyrus*, and *Crataegus*; the steppe areas are represented by herbs with significant representation of Legumes, as well as by *Astracantha* and *Onobrychis cornuta*; and eventually the meadows are represented by wide variety of herbs and grasses. In total, there are 146 species of birds recorded here. Among those, 100 species are breeding, and 46 species are migrating through the area or stay here overwinter. The site represents an important breeding area for Egyptian Vulture (A1), Bearded Vulture (B1a), Short-toed Snake Eagle (B1b), Levant Sparrowhawk (B1b), Golden Eagle (B1b), and Eagle Owl (B1b). The area is located at the community lands, part of which have been allocated to Arpa Protected Landscape – an inter-community conservation area. The rest of the area is used for horticulture and livestock husbandry. Intensive grazing, uncontrolled mowing, and non-coordinated habitat transformation under orchards are the major threats here. Some poaching was reported, both: on game birds out of official hunting season and on raptors taken as trophy. Another threat comes from human induced fires: the local people often burn *Astracantha* spp. and *Onobrychis cornuta* bushes, either for quick fire for cooking or just for fun. Such a habit can provoke large-scale fire in the area as it did in Vayk communities. WWF Armenia has successfully facilitated community agreements with Arpa Intercommunity Fund to support the biodiversity management of portions of IBA in Areni and Khachik. In 2016 the area was designated as Emerald Site "Gnishik Protected Landscape" and during 2017-2018 was included into the Arpa KBA and involved into the Ecoregional Conservation Plan. The next step in conservation is official designation of the Emerald Site and *development of an integrated management plan for the area, combining efforts of Arpa Protected Landscape and Emerald Site. The management plan should take into consideration the wide opportunities of historical, cultural and nature tourism of the area, including birdwatching and butterfly-watching, as well as interests of local rural communities.*

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<sup>73</sup> <https://medwinpublishers.com/IZAB/revision-of-important-bird-and-biodiversity-areas-of-armenia.pdf>



## Annex 20: Agriculture sector baseline and feasibility analysis for Outcome 3

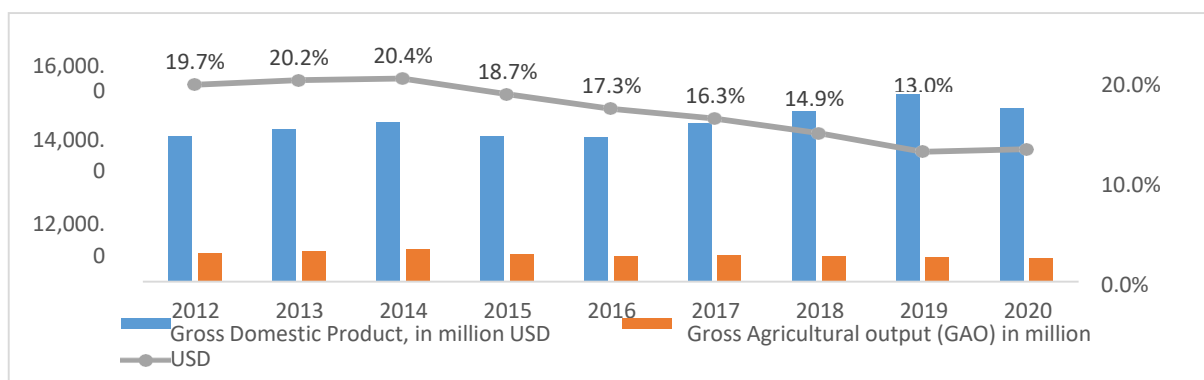
### Agriculture sector

Much of the country is a high mountain plateau with limited area of arable land. Of 2.05 million ha of available agricultural land, around half is represented by mountain pastures. Only 25% of agricultural land (505,000 ha) is suitable for intensive farming, of which 446,700 ha is used for annual crops, and 57,700 ha for perennial crops. Permanent pastures account for a further 121,700 ha. Less than 30% of agriculture land is irrigated, with 110,000 ha reported by the State Water Committee and 92,200 ha reported in the Agricultural Census.

Based on Census data, irrigated land accounts for around 45% of the total value of crop production. The climate is continental, with hot summers and cold winters. Rainfall is low, ranging from 250 mm in lower areas to more than 800 mm in the mountains. The limited area under irrigation is thus a major constraint and this problem will deepen under climate change induced water stress, as the water supply for irrigation will decrease and the demand for irrigation will increase. Small-scale, semi-subsistence farms predominate. Agriculture sector is largely driven by increased productivity of semi-subsistence farms rather than widespread adoption of improved technology and a shift to modern agriculture. Agriculture employment fell from 44.69% in 1991 to 24.05% in 2019 and there is evidence of a transfer of employment from agriculture to non-agriculture sector.

The overall trend in Armenia's economic development before the COVID-19 pandemic, has been positive with a high economic growth rate, a steady increase in exports, decreasing unemployment and increasing GDP per capita in most regions. Following robust growth in the past three years, which continued also in the first two months of 2020, the situation has been changed after the COVID-19 pandemic. According to the publications of the National Statistical Committee of RA, the GDP in 2020 decreased by about 5.8% compared with GDP in 2019. It is an undeniable fact that agriculture in Armenia is the most important sector for the rural environment and in terms of contribution to the country's Gross Domestic Product (GDP). However, following the decreasing trend of the GDP, the gross agricultural production value decreased as well by 4% in 2020 compared to 2019. Overall, in 2020 the Gross Agricultural Output (GAO) amounted to 1.675 million dollars with crop production up to 47% and animal husbandry 53%.

**Fig. 1.** Volume of GDP and gross Agricultural Output



Armenia's agricultural sector has the opportunity to build on several unique competitive advantages such as the privileged access to the large Eurasian Economic Union (EAEU) market in addition of which plans to enter EU, Japan, Middle East and North America markets; a compact geographic footprint with close proximity between urban and rural markets; long-lasting vegetation period for high-value plants, favorable agri-climatic zones with long growing seasons and early harvest dates for agricultural products; a rich agronomic legacy as the global birthplace of viticulture and products such as apricots and cherries; and – most importantly – advantaged ecological conditions with high quality water and high altitude lands which lend themselves to the production of uniquely tasty and natural produce. On the other hand, the Armenian agriculture sector suffers from low productivity due to multiple factors, including limited irrigated land, inadequate infrastructure, limited access to finance, a lack of efficient technology, vulnerability to natural hazards, and underdeveloped market mechanisms.



### **The effect of COVID-19 on Agriculture sector**

*(excerpt from the study titled “National study for food systems transformation 2030”<sup>74</sup>)*

The Government of Armenia used non-tariff measures to contain the spread of the pandemic, prevent supply shortages and reduce supply chain disruptions. The COVID-19 containment restrictions during the first wave significantly complicated the logistics and distribution of agricultural products and caused certain disruptions in the supply chain. As Armenia's foreign trade relies heavily on road transport, the border closures and travel restrictions inflated transportation costs and caused significant delay.

However, the impact of these restrictions depended on the destination country. For instance, the border closures with Iran and the national travel ban severely disrupted exports which were done by air cargo. The major impact came in the form of domestic movement restrictions during the onset of lockdown measures. An interviewed dairy processor reported that in March-April 2020 public transport was stopped due to the travel restrictions. The processor had to face additional costs due to the organization of daily private transportation to bring workers to the enterprise. The first strict lockdown measures in spring 2020, which were eased in May 2020, led to two-month interruptions in the import of inputs. However, these delays in input imports related to the border customs services did not disrupt the supply of agricultural inputs as most local suppliers and processors dispose of stocks. For instance, an interviewed dairy processor reported that the own stocks could allow him to operate without purchasing additional inputs for six months if the lockdown measures would have been extended. As the lockdown measures were eased, agricultural and connected sectoral activities and movements in rural areas were permitted if they were related to farming. The input supply was more severely undermined by Armenia's limited access to transport routes and lockdown measures in partner countries (UNECE 2020).

In 2020, due to the COVID-19 containment measures the consumption of wine fell both in the domestic, mainly with the closure of HoReCa sector and decline in tourists, as well as in foreign markets, e.g. in Russia.

As a result, Armenian wine companies operated only at half capacity or did not purchase grapes at all for wine production. The expert interviews revealed that wine producers had to reduce their purchase from farmers as their sales at domestic and foreign markets shrank. Based on surveys conducted by different international organizations, the Diet Survey-COVID-19 questionnaire was developed for this case study<sup>75</sup>. There were 471 of these surveys conducted among the adult (aged 18–65 years old) and elderly (aged 66 years old and above) population of Yerevan. The survey results highlight the fact that, during the state of emergency, the majority of Yerevan's population has not faced any food availability problems. However, 29.9 percent of the people have had a food deficit and 42.5 percent have been forced to change their favorite food to a cheaper alternative because of financial reasons. Overall, during the COVID-19 confinement, the dietary habits of the population of Yerevan have deteriorated to a greater extent than they have in more developed countries.

### **Potential impacts as a result of armed conflict in Ukraine**

*(excerpt from UNDP Armenia brief)*

The Russian Federation and Ukraine are among the most important producers of agricultural commodities in the world. Both countries are net exporters of agricultural products, and they both play leading supply chain roles in the global markets of foodstuffs and fertilizers, where exportable supplies are often concentrated in a handful of countries. This concentration will expose these markets to increased vulnerability to shocks and volatility. Many countries that are highly dependent on imported foodstuffs and fertilizers, including several that fall into the Least Developed Country (LDC) and Low-Income Food-Deficit Country (LIFDC) groups, rely on Ukrainian and Russian food supplies to meet their consumption needs. Many of these countries, already prior to the conflict, had been grappling with the negative effects of high international food and fertilizer prices.

The impact on food security at global level are beginning to be felt in Armenia as well, which in 2020-2021 had a poverty rate of 27% (Armstat 2020), a Food security rate of 21.4% (WFP, 2021) and in Feb 2022 food inflation reached a staggering 11.4%.

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<sup>74</sup> [https://summitdialogues.org/wp-content/uploads/2021/09/Armenia\\_National-Pathway\\_2021\\_En.pdf](https://summitdialogues.org/wp-content/uploads/2021/09/Armenia_National-Pathway_2021_En.pdf)

<sup>75</sup> [https://summitdialogues.org/wp-content/uploads/2021/09/Armenia\\_National-Pathway\\_2021\\_En.pdf](https://summitdialogues.org/wp-content/uploads/2021/09/Armenia_National-Pathway_2021_En.pdf)

According to the official statistics Russia is Armenia's key supplier of wheat, maize, barley, sunflower seed oil and fertilizers among other products with key supply routes to Armenia via the Black Sea. In terms of remittances, 7% of the total remittances received by Armenians is from Russia. The depreciation of the Russian Ruble and an economic recession in Russia and Ukraine will impact approximately 56,000 of the Armenian households and result in loss of employment of seasonal workers from Armenia and negative impact on their households. It is estimated that in the first week of the war, about 30,000 people have moved from Russia, Belarus, and Ukraine to Armenia, who have rented land for a long time and have settled in Armenia.

According to the Government of Armenia, the country will not face a deficit of wheat in the short and medium term, given the existing grain reserve in the country, the current Russian grain excess and export priority given to the Eurasian Economic Union countries. Assuming a further increase of food price of 20% or more, overall food insecurity in Armenia is expected to increase from 21.4% to 34% or more, and the average poverty rate from 27% to 43% depending on a cumulative impact of the following factors: expected low agricultural production in Armenia (due to reduced rainfall and high fertilisers prices) as well as the effect of the hostilities on the availability of food exports from Russia; the reduced flow of remittances; the demand for Armenian goods and services; and the capacity of the Armenian Government to compensate vulnerable households for the rampant inflation (11.4% in Feb 2022).

### **Baseline for Agricultural Support Programmes and Agricultural Payments**

*(Excerpt from PPG Expert Agriculture sector funding resources-baseline report)*

#### **Strategic programs for agricultural development**

In 2018-2020, new programs to support agriculture were launched. During the years of post-independence, a number of short-term and long-term strategies for sustainable agricultural development were developed in Armenia. Currently, the state policy of the agricultural sector is based on a number of program documents, in particular the "2020-2030 strategy of the main directions ensuring the economic development of the RA agricultural sector" approved by the RA Government in December 2019; the "Concept and program of measures to increase the efficiency of agricultural land use" (Decision N 68-L of the Government of the Republic of Armenia dated 23.01.2020); Different measures to neutralize the economic effects of coronavirus. The goal of the strategy is to ensure a sustainable, innovative, high value-added agriculture that cares about natural resources and is environmentally friendly, creates ecologically clean products and guarantees the well-being of people living in rural areas. The state budget financing is aimed at the implementation of programs supporting the agricultural sector and economic entities, which will be implemented through co-investment schemes or mechanisms. Some of these programs are directly related to the sustainable management of pastures and hayfields, although they have an economic content and are rather aimed at creating new value, increasing gross agricultural output and incomes.

Priorities under the programmes in agriculture sector:

- Application of credit interest rate subsidy and compensation mechanisms in the agricultural sector,
- Leasing supply of technical means in the agricultural and agri-food sector,
- Introduction of modern irrigation technologies,
- Introduction of small and medium-sized greenhouses, "smart" livestock buildings, using compensation mechanisms,
- Implementation of state support programs for livestock development,
- Introduction of advanced technologies in the livestock sector,
- Plant protection measures,
- Targeted and systematic use of natural fodder, etc.:<sup>76</sup>

The action plan and costing for the implementation of the strategy goals have been developed for 2020-2022, which is already reflected in the 2021 and 2022 state budgets. Expenditure on the implementation of the measures for the implementation of the strategy for 2020-2022 is estimated at 19.5 billion drams or 39.8 million US dollars.

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<sup>76</sup> Strategy of the main directions ensuring the economic development of the RA agricultural sector for 2020-2030, <https://mineconomy.am/page/1467>

## **State support programmes**

Since 2018, the Government has been implementing agricultural support programs, the direct and indirect beneficiaries of which are both processing companies and agricultural producers. In the context of developing sustainable management plans for pastures and natural and cultivated fodder, the state support provided to cattle and sheep farms, as well as to agricultural processing companies and slaughterhouses, are relevant for consideration.

### **Livestock support program**

Cattle breeding is the leading branch of the livestock sector of the Republic of Armenia. 95% of milk and almost 58% of meat produced in the country are obtained from cattle breeding. 93% of farmed beef is a Caucasian gray breed with a dairy orientation well adapted to local climatic conditions. Holstein, Schwitz, and Simmental animals are also bred in the country. About 170 thousand farms and collective farms are engaged in cattle breeding in the republic. In 2007-2015, more than 2,500 heads of Holstein, Schwitz and Simmental pedigree heifers were imported to Armenia. Year-round nursery behavior is widespread in the lowlands of the country, and pasture-nursery behavior in the foothills and mountains. The largest number of cattle is concentrated in Gegharkunik and Shirak, then in Aragatsotn, Syunik and Lori marzes.

During 2019-2020, about 600 pedigree calves or heifers of the Simmental, Holstein and Aberdeen-Angus tribes were imported to the republic.

In the field of cattle breeding, there are tendencies of intensification and introduction of modern technologies, which are also promoted by the implemented state support programs, in particular, "Cattle breeding development program in the Republic of Armenia 2019-2024" and "Small or medium" Smart "livestock construction or reconstruction and their technological support" program.

### **Sheep Breeding Support Program**

Sheep breeding is more developed in the foothills and mountains of Armenia, where there are extensive pastures. The largest number of sheep are bred in Gegharkunik and Syunik marzes, then in Aragatsotn and Shirak marzes. In recent years, in addition to local breeds, other breeds of sheep have also been imported, in particular sheep from the Romanov Edilbayev breeds, which have successfully adapted to local climatic conditions. The republic annually produces about 19 thousand tons of mutton, and the annual export potential is 180-200 thousand sheep.

On September 19, 2019, the program "State support for the development of sheep breeding and goat breeding in the Republic of Armenia for 2019-2023" was approved. At the same time, within the framework of the program "State Support for the Development of Sheep and Goat Breeding in the Republic of Armenia for 2019-2023", about 200 head of Dorper sheep were acquired during 2019-2020, as well as 300 heads of Romanov and 20 heads of Hisar breed sheep.

### **Crop Support Program**

Crop production is one of the main branches of agriculture. Due to plant products, it provides the population with food, the livestock sector with fodder and many industries (food industry, fodder, textiles, pharmaceuticals and perfumes) with raw materials of plant origin. Field cultivation is one of the main directions of crop production, which specializes in the production of cereals, fodder and technical crops. According to the data of the Statistical Committee of the Republic of Armenia for 2019, the total sown area of perennial grasses in the country is 49,728 hectares, mainly alfalfa and corn are cultivated.

The program "Support to the development of seed production of cereals, legumes and fodder crops" provides support to four seed-producing organizations. From the point of view of solving the problems faced by agriculture and increasing competitiveness, the joint activity of farmers in agriculture is particularly important, in particular, through the formation of cooperatives.

The policy of promoting cooperation is one of the important components of the state policy pursued in the agricultural sector. This is evidenced by a number of benchmark program documents underlying the state policy in the field of agriculture. Among them are the program of the Government of the Republic of Armenia approved by the decision N 65-A of February 8, 2019, the strategic development program of the Republic of Armenia for 2014-2025 approved by the decision of the Government of the Republic of Armenia N 442-N of March 27, 2014, December 19, 2019 - The 2020-2030 strategy of the main directions ensuring the economic development of the RA agricultural sector approved by the Government Decision N 1886-L. **"Community Agricultural Resource Management and Competitiveness Program", the main goal of which is to improve the productivity and**

**sustainability of pastures and livestock systems in high mountainous and border-target livestock communities. Increase in the volume of products produced and marketed. The program, in fact, aims to improve the well-being of the population, as well as environmental security.**

Approximately 189 "Pasture Users' Union" consumer cooperatives have been established within the framework of the "Community Agricultural Resource Management and Competitiveness" program (CARMAC, CARMAC 2), the main purpose of which is to increase the efficiency of livestock through livestock management and improvement.

About 52 agricultural cooperatives, 14 of which are processing cooperatives, have been established under the auspices of the European Neighborhood Fund for Agriculture and Rural Development (ENPARD), implemented by the Food and Agriculture Organization of the United Nations.

#### **Financing of the state support programs**

The current government-sponsored programs are currently being implemented through a co-investment scheme, as the loan interest is subsidized by the state, as follows:

1. \$2.76 million (1,380,000,000 AMD), the co-investment interest rate is 50-70%.
2. Climate-wise irrigation - state-planned investment in 2022-2023 - \$ 4 million (2,000,000,000 AMD), including loan subsidies.  
The level of joint investments is 16-18%.
3. Intensive Orchards, Vineyards - The investments envisaged for 2022-2023 are 260,000 USD (130,000,000 AMD), the co-investment rate is 50%. \$ 3 million (AMD 1,500,000,000) is allocated to subsidize interest rates on loans.
4. Seeds - \$ 1.4-1.6 million (700-800 million drams) is allocated annually to subsidize 50% of loans.
5. Other agricultural products (agricultural machinery, agro-processing, sheep breeding / cattle breeding, anti-hail nets), the interest on the loan is fully subsidized.

The 2021 report of the RA Ministry of Economy presents detailed information on 13 state programs to support agriculture.

#### **Loans**

During 2018-2020, approximately 50,731 loans were provided to agricultural businesses in the total amount of 121,453.3 million drams (approximately 249 million USD) . At the same time, as a result of changes in support programs in 2020, the maximum loan thresholds, repayment and grace periods have been increased. Compared to the corresponding indicators for 2018, the number of loans provided in 2020 has increased 6.9 times, and the amount 2.9 times.

In 2020, 4,037 units of loans in the amount of about 6 billion drams (aprox. 12.3 million USD) and 1,191 units of loans in the amount of about 2 billion drams were provided to agricultural operators in Gegharkunik and Vayots Dzor regions, respectively.

The state budgets for 2021 and 2022 provide for 4,027.1 and 9,800.0 million drams, respectively, to subsidize interest rates on agricultural loans.

The amount provided for subsidizing loan interest rates in 2021 and 2022 was 85.4% and 93.7% of the state expenditures envisaged by the Agricultural Promotion Program, respectively.

#### **State Leasing Support Program for Financial Leasing of Agricultural Machinery**

The aim of the project is to supply agricultural machinery to farmers on affordable terms, using leasing mechanisms. The possibility of co-financing in the amount of 10% is envisaged for the purchase of agricultural machinery, in case of prepayment financing - not more than 10 million drams. In 2020, the amount of leasing amounted to 2.7 billion drams, the number of subsidies - 245.5 million drams. Gegharkunik region is the second in the number of agricultural machineries acquired within the framework of this program - 103 points, and Vayots Dzor region is in the last place - 5 points.

According to the state budgets of 2021 and 2022, 285.1 and 524.7 million drams, respectively, are envisaged by the state leasing support program for financial leasing of agricultural machinery.

### **State Leasing Support Program for Financial Leasing of Agri-Food Equipment**

In accordance with the terms of this state support program, the total volume of leasing provided at 0% interest rate in 2020 amounted to 6.3 billion drams, and the number of subsidies - 217.9 million drams.

Gegharkunik and Vayots Dzor marzes occupy the last place among Yerevan and other marzes by the number of leases received (7 points).

The state budgets of 2021 and 2022 envisage 550.6 and 1,146.6 million drams, respectively, under the state support program for financial leasing of agri-food equipment.

### **Interest rate program for subsidizing loans provided to the agro-processing sector for the purchase of agricultural raw materials**

The program has been operating since 2018 and has achieved the most significant success in 2020. The loans were provided at 0% interest rate, with a maximum loan repayment period of 24 months. In 2020, 181 loans were provided (Gegharkunik region - 5 and Vayots Dzor region - 11) in the amount of 22.3 billion drams. The amount of the subsidy was 703.4 million drams. The state budgets of 2021 and 2022 envisage 1,633.0 and 2,300.0 million drams to subsidize interest rates on loans provided to the agro-processing sector for the purchase (purchase) of agricultural raw materials.

### **Cattle breeding development program for 2019-2024**

Within the framework of the program, 391 head of livestock were purchased in 2020 (319 head in 2018) at a cost of 345.0 million drams, the amount of subsidy was 51.5 million drams. Approximately 151.7 and 74.4 million drams are envisaged for the financing of the cattle breeding development program for 2019-2024 by the state budgets of 2021 and 2022.

### **State support program for the development of sheep breeding and goat breeding for 2019-2023**

In 2020, 652 animals were bought within the framework of this program (203 heads in 2019), 231.0 million drams and 4 credit points were provided. The amount of the subsidy was 22.2 million drams.

The state budgets of 2021 and 2022 provide financing of 193.0 and 78.7 million drams for subsidizing and reimbursing interest rates on targeted loans provided for the development of sheep and goat breeding in 2019-2023.

### **Results of state support programs in the field of agriculture in Gegharkunik and Vayots Dzor marzes**

#### **Gegharkunik region:**

- 4037 credit units - 5.7 billion drams
- 3.5-hectare intensive garden,
- 1 smart cattle building,
- 287 head of small cattle,
- 103 agricultural machinery,
- Agro-food leasing for 35.4 million drams,
- 7 food contracts,
- 15 insurance contracts.

#### **Vayots Dzor region:**

- 1191 credit points - 1.9 billion drams
- 32.5-hectare intensive garden,
- 5 agricultural machinery,
- 29.4 million AMD agri-food leasing,
- 69 procurement contracts,
- 14 insurance contracts.

### **Grants and loans of international organizations**

Numerous projects have been implemented in the field of agriculture, financed in the form of grants and loans provided by international organizations. They are aimed at capacity building, rural infrastructure development, laboratory capacity building and food security.

Armenia continues to receive international grants and loans for agricultural development.

**Grants:**

In 2021, funding from the state budget for the rehabilitation and development of rural infrastructure, as well as for the promotion of agriculture, amounted to 3.1 billion drams, of which 2.4 billion drams were grants and 735.4 million drams were co-financing. The 2022 budget envisages 3.7 billion drams of financing for the same purposes, of which 3.4 billion drams are international grants and 393.4 million drams are co-financing.

The grants were provided by the International Bank for Reconstruction and Development, the French Development Agency, the Global Environment Facility, the US Government, and the International Fund for Agricultural Development.

In 2021, the Ministry of Environment's funding from the state budget for the management and protection of natural resources and specially protected areas amounted to 2.1 billion drams, of which the grant provided by the German Development Credit Bank (KfW) was 1.6 billion drams and the co-financing was 511.7 million drams. The 2022 budget did not provide grants for the RA environment.

**Loans:**

In 2021, the Ministry of Economy's budget for the reconstruction and development of rural infrastructure, as well as for infrastructure and rural financing, amounted to 3.1 billion drams, of which 2.7 billion drams were loans and 389.8 million drams were co-financing.

In 2022, the same indicators amounted to 1.5 and 1.3 billion drams and 216.7 million drams, respectively.

The projects are implemented with the support of the World Bank and the International Fund for Agricultural Development.

**Pastures and grasslands resources in Armenia**

*(excerpt from the PPG Expert Pastures and Forests Analysis Report)*

The total area of pastures and grasslands are estimated at approximately 1,049.87 thousand ha pastures, 121.23 thousand ha grasslands. About 97% of pastures are community-state property, 3% are private property. 55% of grasslands are community-state property, 45% are private property. The pastures and grasslands are not evenly distributed in the territory of the Republic of Armenia (RoA); the majority of them are located in Gegharkunik, Lori and Syunik regions. The pastures and grasslands of the country together with the various ecosystem services provided by them, are of special and decisive importance for the development of agricultural production, particularly livestock.

In the administrative territory of the RoA, natural pastures, and grasslands are principally located in mountain-steppe, mountain-forest, sub-alpine, and alpine high-mountainous landscape zones, between 1400-3500 meters above sea level. Small, fragmented pasture areas are distributed in dry steppe-foothill and semi-desert landscape zones. Pastures of the republic are mainly used in the low and middle mountainous areas (mountain-steppe, mountain-forest, and low-alpine landscape zones), due to the existing technical, and socio-economic barriers.

The pastures of the high mountainous (sub-alpine and alpine) areas are used in part, though limited in area, by large farms. In some cases, small and medium farms in the community have joined herds, especially stunted cattle to organize distant seasonal behavior.

The principal reason for the limited use of pastures in the high mountain zones is the current technical and economic difficulties, as well as the limited access to these areas due to lack of necessary infrastructure (roads, Shepherd/family lodgings, animal housing, and water points) or their dilapidated and unsatisfactory state. As a result, the opportunities for seasonal long-distance livestock movements are severely limited, especially for small farms. It is due to such problems that the provision of pasture livestock feed is currently mainly carried out from relatively low-lying pastures near communities, where the livestock density is quite high and grazing is continuous and unmanaged, which leads to the degradation of these peri-urban pastures.

Changes in livelihood patterns, socio-economic expectations and rural demographics are driving factors leading to degradation in low-lying and medium-high mountainous areas near the community. Overgrazing, irregular haymaking and excessive extraction of landscape resources (wild collection) have affected the landscapes' capacity to provide ecosystem services. Without the traditional cultural production and social systems that regulate use, pasture and grassland productivity is relatively low and far from its potential and threatens biodiversity and ecological integrity of these areas.

Reduction and loss of vegetation due to irregular management directly affect soil cover, leading to soil erosion, which is widespread, according to official reports. The latter pose serious risks for the sustainable development of natural ecosystems, providing trends for the further development of potential desertification phenomena, which also contribute to current climate change through the release of GHG and loss of potential sequestration of GHG.

From this point of view, the mountainous landscapes with pastures in the south and middle part of Armenia with a strong east-south orientation are especially at risk. Here, climate change and reduced soil moisture contribute to the gradual reduction of more humid and sub-humid plant species from pasture communities to forced migration, contributing to the degradation and formation and development of gradual desertification. Due to the fragmented terrain, sloping slopes and other natural conditions, the Armenian fodder lands (pastures and grasslands) have always been in danger of degradation, which has been further facilitated by the current practice of irregular management. However, the unstable socio-economic situation created after the independence of the republic had a very negative impact on the natural pastures and grasslands, as the influence of anthropogenic factors became more intense on the latter.

At present, there is an urgent need to support the implementation of on-site sustainable pasture management procedures, as well as to encourage the expansion of work to restore and improve degraded pastures. Such actions will not only promote biodiversity conservation and sustainable use, but also food and water security, provide jobs, reduce poverty, promote the preservation and sustainable use of natural capital, combat land degradation, and desertification, and adapt to climate change adaptation.

#### **Status of Armenia's forests and their management**

Armenia is a poor country in terms of forest cover, which is conditioned by the geographical location of the country, climatic conditions, human influence and other factors. According to the data of 2021 on the land balance of the Republic of Armenia (decision of the Government of the Republic of Armenia N 1732 of 21.10.2021), forest lands make up about 11.23% of the country's territory, about 334.01 thousand hectares, of which 283,600 hectares are natural forests and 50,500 hectares are plantation forests. The forests of Armenia are mountainous, found mainly in the northern and southern regions. The central region is almost devoid of forests, there are only forest islands or arid forests. In Armenia, broad-leaf forests predominate. There is a homogeneous coexistence of the most common forest species, such as beech, oak, and hornbeam, as well as mixed forests, accompanied by different species. The forests are spread at the altitudes of 500-2400 m. There are four main types: oak, beech, hornbeam and dry sparse forests. Forest areas, depending on climatic conditions and anthropogenic impact, are unevenly distributed and include 3 forest zones: northern and northeastern (62%), south-eastern (36%) and in central Armenia (2%).

There are about 274 species of shrubs in the forests, including endemic, relict and rare species, of which the main natural forest species are oak, beech, hornbeam and pine. Forests of Armenia and forest lands are the property of the state. Outside the officially protected areas, the forests of Armenia are managed by the state through the "Hayantar" state non-commercial organization (SNCO-State Enterprises). The forests of Armenia stand out with their rich biodiversity. Forests have soil protection, water protection and climate regulatory significance. They also play a socio-economic role. Human overexploitation and the negative effects on the natural environment have over time significantly damaged Armenia's forest ecosystems. Most of the forestless areas of the republic were covered with forests in the early past. During centuries the irregular exploitation and cutting, most of the forests of Armenia have been destroyed, a number of valuable plant species have disappeared, the preserved ones are forests of lower value. Many forests in Armenia are currently under special protection; about 90% of the specially protected areas are forests. The current limited forest cover is the result of large-scale deforestation and forest degradation that occurred during the energy crisis of the early 1990s. The current level of reforestation is low. Illegal logging, even under tighter state controls in recent years, still occurs. Uncontrolled selective felling of valuable trees leads to degradation of the rest of the forest. Irregular grazing of livestock, especially along the upper border of the forest zone, prevents the natural restoration of forests. Ongoing forest degradation is causing biodiversity loss, and deforestation is damaging the ability of forest ecosystems to withstand and recover further pressures such as the adverse effects of climate change.

Moreover, deforestation can lead to water runoff, which poses a risk of landslides and soil erosion, can deepen waterway pollution, and slow down the recovery of groundwater resources. Possible changes in Armenia's forest cover are related to land degradation and drought. Armenia's NC4 estimates a potential loss of 14,000-17,500 hectares by 2030 due to changes in ecosystem growth conditions, as well as the frequency of forest fires, pests, disease outbreaks, and invasive species. Armenia has already begun to develop adaptation programs to reduce deforestation through its National Forest Policy Strategy, Improved Forest Fire Policy, and Special Territorial Action Plans. A general trend of moving the range of species to higher altitudes is expected; conversion of lower altitudes to dry forest, steppe and semi-desert species. The National Strategy for Combating Desertification of Armenia and the action plan was ratified in 2015 to increase the efficiency of land management, to raise public awareness about desertification problems and their solutions.

In order to expand the forested areas in the Republic of Armenia, the Forest Code also stipulates the right of community-private ownership over the forests established by them. According to the Forest Code (2005), the forests of Armenia, regardless of the type of ownership, are classified according to their purpose, for protection, special and production significance. The group of forests of defensive significance includes the area of 200 m wide of the upper and lower borders of the forest, forests growing in semi-desert, steppe, and forest-steppe zones. This is particularly important in terms of mitigating the vulnerability of forests to climate change, as deforestation in this group of forests is limited. According to the program of the Government of the Republic of Armenia (2019 .), forest protection, sustainable management, expansion of forested areas, reforestation, afforestation, continuous development of capacities for their implementation are among the priority directions of environmental management. Government 2017 Protocol Decision No. 50 of November 30, 2006, approved the "Concept of Strategy, Strategy and List of Measures for Forest Sector Reform", which is aimed at ensuring the balance of social and economic needs, climate and environmental requirements.

Ministry of Environment since January 2020 has initiated the development of a national forest program, which is targeted by 2050. To increase the afforestation of Armenia to 20,1% of the country's territory. It will be implemented in accordance with the "envisaged actions / investments defined at the national level of the Republic of Armenia under the UN Framework Convention on Climate Change" approved by the Government in 2015.

### **Introduction of pasture and forest resources in the national economy**

Like any natural resource, pastures and forest areas have important economic and environmental significance in the national economy. In contrast to forest areas, pastures are still an insufficiently studied field in Armenia; so far, the ecological and economic condition of the pastures of the republic has not been clearly assessed. Traditionally, pastures are widely perceived by the general public as a source of food for pets, their importance for other sectors of the economy is ignored. Nevertheless, the role of pastures is also significant for other branches of the Armenian economy, such as pharmaceuticals, food production, tourism, selection-seed breeding, etc. The livestock sector largely depends on natural fodder lands pastures and grasslands. Livestock is one of the main branches of agriculture in Armenia, providing about 40% of gross agricultural output over the last ten years. At the same time, the share of livestock products in the volume of gross agricultural output has increased, reaching 48%. Most of the livestock products in the whole territory of the country are produced in the pastoral region, so the pastures are an affordable means of food supply, they are crucial for the development of the livestock sector in Armenia.

The main areas of management in the rural communities of the foothills of the country are crop production and animal husbandry. In most rural communities, the main livelihood of the population is mainly derived from the livestock sector, as about 58% of family farms are engaged in animal husbandry. As always, in rural areas of Armenia, there is mainly pasture cattle breeding, as due to climatic conditions it is possible to feed about 6-7 months cattle and 8-10 months small cattle in pasture conditions. From this point of view, the pastures and the eco-economic condition of the latter are of vital importance for the development of the livestock sector in the country. In natural fodder fields (grasslands and pastures), the stock of hay ensures the satisfaction of the summer fodder demand and the coarse volume fodder demand of the winter-nursery period, more than 65-70%. Currently, more than 50-55% of the meat produced annually, about 70% of milk almost 100% of wool is produced exclusively through the use of communal pasture systems.



In addition to their socio-economic role, pastures and grasslands are unique natural ecosystems such as forests, in particular:

- Being natural ecosystems, they ensure the sustainable development of biodiversity, preserve the genetic resources of wild relatives of crops.
- Prevents soil erosion, mitigates landslides, floods, droughts, regulates the microclimate, promotes water formation.
- Provides basic landscape and ecological functions, nutrient circulation.
- They are a natural storehouse of carbon and other greenhouse gases.

According to the Ministry of Nature Protection (2015), the territory of the Republic of Armenia belongs to the Central Asian Center for the Production of Various Crops: Wheat, Peas, Lentils, and Grapes. There is a rich gene pool of wild relatives of the crop, which is a source of genetic material, used to obtain new varieties with medicinal, drought-resistant, frost-resistant, other adaptive properties. The importance of pastures and grasslands for the development of wild collection and beekeeping in rural communities is widely used, which are currently being promoted as important components of increasing rural livelihood opportunities and diversifying income streams. Pastures are also vital for mitigating global climate change. As natural reserves of carbon, they play a key role in global carbon cycles, regulating methane and other greenhouse gas emissions. At the same time, according to the Food and Agriculture Organization of the United Nations, the amount of carbon stored in pastures around the world is about 50% higher than the global carbon reserves in forests (FAO, 2010).

Forests, which are mainly mountainous, have a great contribution to the national economy of the country; have land protection, water protection, climate-regulating significance, as well as high socio-economic, scientific, environmental value, rich biodiversity. The average bonitet of the forests of the republic is 3.6, the average completeness is 0.55, the average stock of natural wood is  $\approx 125$  cubic meters / ha, the average annual growth is  $\approx 1.3$  cubic meters / ha. Each inhabitant of the republic has about 12 cubic meters. biomass of natural wood. Being an ecological environment necessary for human life, the forests of Armenia have a significant ecological significance. It is a necessary factor for the formation of the country's climate, regulation of temperature and water regimes, purification of the air from dangerous gases and other materials, protection of the soil from erosion processes, ensuring the sanitary and hygienic condition of the environment. The well-being and social status of the population of Armenia are closely linked to the conservation and sustainable management of forest biodiversity, which, being the still underestimated guarantee of viable nature and healthy living, must take precedence among the country's enduring values. From this point of view, the forest areas of Armenia, having high features ensuring the stability of ecosystems, are at the same time one of the important preconditions for the economic development of the country.

Forest resources are a key factor in supporting the country's economy, especially in terms of agriculture, food, light industry, tourism, the provision of raw materials to other sectors, and the development of recreation. The rich forest biodiversity of Armenia creates wide opportunities for external forest use as well. Collection, processing, and selling of berries, wild fruits, mushrooms, other non-timber forest products, beekeeping can provide significant incomes not only for the forestry but also for the rural population, improving the social situation, creating jobs, and reducing the pressure on forests for natural wood use. One of the priorities of external forest use in the Republic of Armenia is the implementation of measures aimed at recreational opportunities of forests, development of tourism and hunting farms, as well as the development and introduction of mechanisms for effective use of agricultural lands in non-forested areas.

The forests of the Republic of Armenia are mainly of environmental significance; previously they did not play a significant role in the socio-economic life of the republic, except for the forest communities, the number of which in the republic reaches 230. For forest communities, the forest has always been of great importance; it has mainly been used as a place of rest, a source of additional income for the population, a non-timber forest product, sustainable fodder supply base, community water conservation, non-productive (non-industrial) firewood procurement area, etc. Taking into account the fact that the forests of the Republic of Armenia are mountainous, of defensive significance, the demand for timber exceeds the productivity of forests several times, it is necessary to subordinate the socio-economic significance of the forest to the ecological significance.

### Land degradation trends on pastures/grasslands and forest areas and associated costs

The unstable socio-economic situation created after the independence of the Republic of Armenia has had a very negative impact on natural fodder lands (pastures and grasslands), as well as forest areas, as the impact of anthropogenic factors has intensified. In addition to anthropogenic factors, climate change poses an additional significant threat to already endangered ecosystems. Overuse of natural resources, forests, pastures, grasslands has become widespread due to the weak institutional capacity of the community government body (Local self-government body) and the growing poverty in the country.

Climate change has a greater impact on the condition of national pastures due to inadequate levels of conservation and attention by government agencies. The lack of a special state policy not only to protect but also to ensure access to pastures has led to the continued deterioration of the ecological and productive conditions of pastures, leading to the expansion of more vulnerable habitats and the deepening of degradation phenomena. Changes in pasture use regimes in the post-privatization period in some areas, mainly in suburban pastures, have led to a reduction in plant diversity, resulting in an increasing deterioration of species habitats. Overgrazing has led to soil erosion and reduced plant diversity. Basic methods of grazing have undergone fundamental changes since the beginning of the economic transition period.

The small and medium-sized livestock population, the high cost of accessing pastures in more remote areas, the lack of necessary infrastructure, and the dilapidated condition have led to overgrazing of pastures with concentrated livestock in rural areas (near-community areas). These areas are under severe pressure due to overgrazing, while the more distant summer pastures (remote areas) and alpine meadows remain underutilized, where the accumulation of residual plant debris on the soil surface over the years has contributed to the formation of moss and deterioration of aeration in the soil layer. Under such conditions, the regressive development of the vegetation has significantly developed, which has contributed to the decline of the qualitative and productive indicators of the vegetation and its natural degradation. Such a situation is found in all the regions of the republic, where the main direction of management for the community population is animal husbandry. According to the average data of different assessments, about 80% of the RA pastures are degraded to different degrees, of which 20% are strong, 45% are medium, and 15% are weak.

The currently limited forest cover is the result of large-scale deforestation and forest degradation that occurred during the energy crisis of the early 1990s. The current level of reforestation is very low. Illegal logging, even under tighter state controls in recent years, still occurs. Uncontrolled selective cutting of valuable trees leads to the degradation of the rest of the forest. Excessive grazing of cattle, especially along the upper forest belt, prevents the natural restoration of forests. Currently, in 2022, the most serious problem is considered the rising prices for energy (natural gas and electricity) which will exacerbate socio-economic problems in rural communities, will inevitably increase the pressure on forests through illegal logging.

Ongoing forest degradation is causing biodiversity loss, and deforestation is damaging the ability of forest ecosystems to withstand and recover from further pressures such as the adverse effects of climate change. According to the Climate Change Scenarios in Armenia (Fourth National Communication under the UNFCCC), climate change will lead to the expansion of the desert, semi-desert, and arid steppe areas due to the vertical displacement of the upper borders. Moreover, the steppe will move 250-300 m upwards in the direction of forest ecosystems, at the same time the movement of the forest zone will reduce the area of meadow ecosystems. As a result, there will be huge changes in the composition and structure of ecosystems. More than 17,000 hectares of forest may be lost due to unfavorable forest development conditions. Huge changes in pasture productivity levels are possible in the country, the total area of pastures and their productivity is expected to be reduced by 4-10%, the area of the sub-alpine zone will be reduced by 19%, and the area of the most valuable and highest-productivity alpine zone is reduced by 22%, as well as there will be a 7-10% reduction in pasture and grassland productivity.

In the humid forests of the middle mountain belt, some xerophytic processes will take place: penetration of typical steppe, light forests, and sibiljak species. The transition of meadow-steppes to steppe ecosystems is predicted. In the conditions of forecasted climate change, due to the expected low humidity and less precipitation, the xerophytic vegetation of the southern slopes and the stands of the lower forest zone will be more vulnerable. Under such conditions, xerophilous plant species will begin to actively penetrate into forest ecosystems.

As a result, natural reforestation processes will deteriorate, the annual growth rate of trees will decrease, which will lead to the replacement of forest ecosystems with light forests and then semi-deserts. In general, xerophytization is expected, which will lead to a significant change in the structure and species composition of existing ecosystems will intensify the degradation of soils and natural pastures. The current level of degradation of lands and natural ecosystems in the country, as well as the emergence and deepening of problems with possible scenarios in the coming years, can be a serious challenge for the country's economy, particularly in terms of food security.

In order to solve the growing problems or mitigate the consequences, the Government of the Republic of Armenia will initiate and will continue to propose various solutions. In particular, with the World Bank co-financed CARMAC-1, CARMAC-2 programs, to assist rural communities in the development of agricultural cooperatives, the provision of technical means, as well as the improvement of infrastructure networks to promote crop production, livestock, sustainable pasture management, conservation, and improvement of degraded areas. As in the past, the government now, with certain preferential terms, provides opportunities for farmers to subsidize agricultural machinery, purchase quality seeds, fertilizers for cultivating the land. At present, the terms and opportunities for lending to agricultural activities have become much easier. Since January 2020, the Ministry of Environment has initiated the development of a national forest program, which aims to increase Armenia's forests to 20.1% of the country's territory by 2050. Such approaches create certain opportunities to gradually reduce the occurrence of land degradation by solving sectoral problems, which is a global problem and a serious challenge for the country.

#### *Socio-economic factors underlying the degradation of pastures and forest areas*

Improper management and socio-economic problems are the main reasons for the degradation of pastures and forest areas in the target communities selected from the two program regions. The main reason for the deepening of degradation in pastures is poor management, which is mainly due to the lack of awareness (financial (economic, professional) capacity of the community population, particularly pasture farmers on the protection of the environment, natural landscapes, and the effective use of pastures and grasslands. Degradation of pasture lands is mainly due to the economic problems of livestock households. In particular, the insufficient state of accumulation of winter maintenance fodder with low cultivation of arable lands due to lack of material resources, restrictions and inexpediency of technical and economic difficulties in the use of remote pastures (difficult access, lack of infrastructure required for seasonally stable long-distance behavior, or dilapidated condition) have become a major cause of overgrazing by grazing in accessible pastures in residential areas. As a result of such a practice, which has been implemented for years, there is a gradual reduction of edible vegetation in the pasture vegetation, destruction of pasture soil layer and gradual degradation of vegetation.

One of the main reasons for the degradation of pastures is the traditional customs of cattle breeders, the conservative attitude towards the use of pastures, and the management of pastural livestock. The low level of financial capacity of Community Local Authorities limits the development of pasture infrastructure by investing in community-owned pastures, implementation of artificial rehabilitation measures in degraded areas, which can be considered as a precondition for sustainable management of pastures with allowable load at the community level, mitigation of degradation processes of pastures, prevention or restoration of the consequences of the already established degradation. Excessive extraction of landscape resources (edible herbs, spices, medicinal herbs, etc.) contributes to the degradation of pastures and natural grasslands (irregular wild collection); which has significantly affected the ability of landscapes to provide ecosystem services while contributing to the impoverishment of biodiversity and genetic resources. Without traditional cultural production and social systems regulating the use, the productivity of pastures and grasslands in Gegharkunik and Vayots Dzor marzes is relatively low and far from its potential, threatens the ecological stability of those areas and the preservation of production opportunities.

Similar problems exist in forest ecosystems. The current limited forest cover is the result of large-scale deforestation and forest degradation that occurred during the energy crisis of the early 1990s. The current level of reforestation is very low both in the country and in the target regions. Ongoing illegal wood harvesting even under tighter state controls in recent years, still occurs. Uncontrolled selective felling of valuable trees leads to degradation of the rest of the forest. The use of forests for firewood is mainly due to the poor economic situation in rural communities.

High prices of household energy sources (natural gas, electricity, liquid fuel) and low level of solvency of the rural population are considered to be the main reason for the growing demand for firewood. The problem is especially acute in forested areas, where, as a rule, regardless of the availability of energy sources of different origins, firewood is considered as the main energy source for heating during the cold season. Possible natural forest restoration (self-restoration) is prevented in forest lands, especially in the areas adjacent to the forest by grazing in such areas (free behavior), in which case the newly formed young shoots of various tree plants and shrubs are permanently destroyed as a result of grazing or trampling. This very dangerous process is very common, especially along the upper border of the forest zone, especially in the forest lands adjacent to the forested rural settlements of Vayk, Jermuk and Yeghegis communities of Vayots Dzor region (Artavan, Saravan, Yeghegis, Hermon, Vardahovit and Goghtanik).

Ongoing forest degradation is causing biodiversity loss, and deforestation is damaging the ability of forest ecosystems to withstand and recover further pressures such as the adverse effects of climate change. Moreover, deforestation can lead to water runoff, which poses a risk of landslides and soil erosion, can deepen waterway pollution, and slow down the recovery of groundwater resources.

#### Barriers to SLM and pastoral activities in Armenia

Ensuring food security in the Republic of Armenia is a national priority, but "experience shows that the practice of using natural resources in the country is not only not aimed at solving this problem, but also contributes to deepening its impact". In particular, according to the Ministry of Environment, the result of irrational use of land resources, including pastures, is that approximately 80% of them are at risk of desertification and erosion, reduced soil fertility and decreased productivity. Naturally, the neglect of these issues, the lack of a policy to regulate their natural and artificial drivers can have irreversible consequences not only on the country's ecology but also carry economic, social and political consequences.

Within this context, key barriers to pastureland development and improved management have been identified and are described below.

#### **\*Gaps in the legal field**

There is no law or integral legal act in Armenia that regulates the use and legal statutes regarding natural pasture and grasslands. Instead, two legal acts deal exclusively with the use of natural fodder field, and management issues are partially regulated by these. These two acts are the following:

- "On Defining the Procedure for Using Pastures and Grasslands" of the Government of the Republic of Armenia 28.10.2010 Decision N 1477-N
- "On Defining the Procedure for the Use of Pastures and Grasslands in the Republic of Armenia" of the Government of the Republic of Armenia 14.04.2011 Decision N 389-N

At the same time, many other legal acts are in force in the country, which to some extent address issues related to the management of natural resources, the powers of local self-government bodies, and issues related to land use. The documents are the following:

- RA Land Code
- RA Forest Code
- RA Law on Local Self-Government
- RA Law on Land Use Control and Conservation
- RA Law on Flora
- Other legal acts.

The only documents regulating the whole process of management of natural fodder fields, pastures, and hayfields in the country are the relevant decisions of the government "On defining the order of using pastures", N 1477-N (28.10.2010), and "On defining the order of use of pastures and grasslands in the Republic of Armenia", N 389-N (14.04.2011), for which it is necessary to single out the following issues:

- The documents regulate the management processes for the use of state-owned natural grazing areas, and the document only suggests to community leaders that the use of natural fodders fields owned by the

community be carried out following the requirements of the decision. Accordingly, questions remain on the use and management of the community-owned natural fodder fields and the result is non-unified approach to management of natural fodder fields based on their ownership. The government does not have the authority to regulate the use of community property; the use of community property can only be regulated by law. In addition, the community, as a legal entity, is free to dispose of its property and bypass the prohibition of providing pasture with the right of gratuitous use; even if it is proposed by law, it can be problematic from the point of view of protection of property rights guaranteed by Article 60 of the Constitution.

- The documents were adopted in 2010 and 2011 respectively and have never been revised since then, which suggests that the principles of natural fodder field management established at the time may not be currently applicable.
- As the only regulatory documents on the subject, they are written in a very general way, outlining only general principles, which may lead to the application of different principles of natural food management by different communities. For example, within the powers and the scope of responsibility, the requirements for monitoring pasture health and productivity by the responsible bodies at the local level are not defined.
- The RoA Law on Local Self-Government defines the powers of local self-government bodies in the field of general land use, agriculture, veterinary medicine, phytosanitary, as well as the protection of the environment. The RoA Law on Control over Land Use and Conservation defines the spheres of control of various authorized bodies in the field of land use. However, again the documents are very general, they do not specifically address the issues related to the management of natural resources, nor do they assign roles and responsibilities or funding.

**\*Lack of policy or funding mechanisms for pasture maintenance**

In the Republic of Armenia, the process of community and state-owned pastures management (use, maintenance, improvement) is reserved for local government bodies, which do not have clear means approved by the community budget to carry out pasture management and maintenance functions. Local self-government bodies do not receive financial allocations from the state budget to carry out such functions.

At best, pasture rental funds are used to carry out such work. In such a case, the protection of pastures, as well as the restoration of degraded areas in the communities is generally not carried out or is carried out in isolated contexts, without a clear continuity or overarching strategy. At present, pasture rental and rental processes in the communities are carried out mainly with large livestock farms, and the practice of drafting lease agreements or paying for pasture use has not yet developed among small businesses.

At present, local authorities make limited financial allocations to build or improve infrastructure in pastures, which is a matter of priority in order to ensure pasture access. In recent years, some assistance to communities to address such issues has been considered by government-approved subsidy programs, in which the state provides up to 50% co-financing for the implementation of various community programs.

**\*Lack of sustainable livestock-based business models to guide investment**

Opportunities to develop the livestock sector in Armenia, to improve livestock breeding, to create opportunities for investment in innovative technologies, are mostly unavailable for small businesses, and for large businesses in many cases it was not profitable in the sense that there were no experiences or models on which to base investment. Evidence of this problem is the scarcity of large livestock farms in the country. There is currently some significant progress development in this area because the government with the Ministry of Economy is offering sustainable livestock-based business models and affordable lending conditions to develop the livestock sector and smart agriculture.

**\*Lack of scientific information and data on actual pasture conditions**

The most important obstacle to the problems of pasture degradation in the country is the lack of a comprehensive information database on the ecological and economic condition of the nation's pastures. Large-scale pasture monitoring and inventories haven't been carried out in Armenia in recent years. Monitoring activities have been carried out in different regions at local levels (community or regional level) by programs implemented by various local and international organizations, at different times. In the framework of the

implemented programs, the combination of the monitoring results in the pastures provided incomplete information about the whole country.

Complete, updated information on pasture status at regional and community levels is not always available. The planning of management functions should be mainly based on monitoring data. Insufficient or out of date data prevents the implementation of effective, sustainable management planning at the community level.

In 2020, within the framework of the "Condition and biomass mapping of grass-covered areas in Armenia" project implemented by the ICARE Foundation with the funding of GIZ, in the administrative territory of the RA, according to the field monitoring carried out by the regions, certain data were formed on the grass-covered areas, including ecological and production conditions of natural grasslands and pastures. The availability of this data may be the basis for pasture management planning in different regions.

In 2014, within the framework of GIZ's "Sustainable Biodiversity Management in the South Caucasus" program, a new methodological manual for pasture monitoring in Armenia was developed under the title "Pasture Monitoring Manual Armenia". The objective was to provide technical assistance to the RoA Government to regulate pasture monitoring functions in the country. The technologies and approaches outlined in this manual were applied on pastures within the framework of programs implemented by local non-governmental and international organizations (GIZ, UNDP, WORLD BANK, SDA), mainly in the program regions and communities. Updated scientific information and data for the whole country are still not enough to plan and implement sustainable pasture management in different regions.

**\*Lack of skills and knowledge of sustainable pasture use**

The formation and increase of degradation in the pastures of the rural communities of the RoA are conditioned by the lack of knowledge of pasture users and within the local self-government bodies. In most cases, the use of pastures according to traditional customs and ideas has contributed to its degradation. The aggravation of the problem is mainly facilitated by the lack of agronomic or environmental specialists in the local self-government bodies in addition to the lack of extension services on these issues.

In 2015, within the framework of GIZ "Sustainable Biodiversity Management in the South Caucasus" project a "Guide to the development and implementation of sustainable pasture management plans" was developed. The aim was to support the Government of the RoA to improve the management functions of natural fodder fields. Applying the methodology of this guide requires training and advice for local government and livestock farmers in rural communities, which has been partially implemented in some regions by various programs, but still with insufficient results.

In 2019, in the framework of GIZ's "Integrated Biodiversity Management in the South Caucasus" program, a "Manual on Improvement of Degraded Natural Grazing Lands (Pastures and Grasslands)" was developed. The aim was to support the Government of the Republic of Armenia in the process of planning and implementation of artificial rehabilitation measures with a sound methodology aimed at the restoration of degraded pastures in Armenia.

**\*Highly perceived costs and risks associated with new technologies and practice**

The main guarantee of maintaining the ecological and economical integrity of pastures is effective and sustainable management, and the main way to improve the degraded areas is to implement artificial rehabilitation measures in addition to natural self-rehabilitation processes. The protection of forest ecosystems is also conditioned by sustainable management, and the main way to rehabilitate degraded or deforested areas is to carry out artificial rehabilitation measures in parallel with natural self-regeneration processes of seed or trunk origin. In both cases, comprehensive management involves the planning of certain complex technological measures, in which case costs and investments are required. Effective management planning is based on field monitoring data as well as the results of remote sensing analysis of space imagery. Ensuring pasture access (remote and nearest behavior areas) presupposes the provision of pasture infrastructure (water points, roads, lodgings for pastors etc).

The implementation of rotational uses of pastures requires pasture mapping, separation of control units, and in many cases, operation of electric fencing. Artificial rehabilitation of degraded areas involves the operation of technical means, the acquisition of materials (grass seeds, fertilizers, seedlings).

The above-mentioned technological measures, necessary materials, and technical means assume direct costs, investments, the provision of which is very limited in the case of communities, livestock farmers and forestry. The existence of such problems and the limited possibilities for solving them are considered to be a serious obstacle to the prevention of pastureland degradation, as well as to the implementation of effective and sustainable management processes.

In contrast to the imperfection of the legal framework of the legislation related to the management of pastures, natural grasslands, the management of forests, in general, forest lands in the Republic of Armenia is carried out in accordance with the RA Forest Code, which was adopted on 24.10.2005. The Forest Code of the Republic of Armenia regulates the sustainable management of the forests of the RA; forest management, conservation, protection, restoration, afforestation and effective use, as well as forest registration, monitoring, control and forest land relations. According to the forest legislation, the relations in the forest sphere in the RA are regulated by the Constitution of the RA, the Civil Code of the RA, the Forest Code, the Land Code of the RA and other legal acts. If international norms of the Republic of Armenia establish norms other than those envisaged by this Code, the norms of international agreements shall apply. On December 13, 2017, the "Concept of Forest Reform" was adopted, which aims to address the issues of sustainable forest management, forest conservation, protection, reproduction, use and increase the effectiveness of the fight against illegal logging.

The Republic of Armenia, as the sole and exclusive owner of Armenia's forests, currently has financial difficulties to properly exercise its property rights. Funding from the state budget, particularly for forest management, is limited and Armenia's forests are in dire need of state support at present. Moreover, the limited support received from the state budget forces foresters to use the forest as much as possible, reducing the cost of reforestation. This leads to over-use of forests in accessible areas, reduction of the forest restoration process, and violation of the relevant principles of forest management.

There are various problems in the forest sector of the Republic of Armenia due to poverty in the forest communities, high level of demand for timber, continuation of illegal deforestation, uncoordinated forest use, slow process of institutional reforms, low commercial capacity of "Hayantar" SNCO, scarcity of financial and human resources and other reasons, which leads to inefficient management, reduction of qualitative and quantitative characteristics of forests. The necessary structural units are missing, cooperation in forest management, community involvement, and local population is weak.

Due to various socio-economic problems, high demand for timber, deforestation still exceeds the volume of natural forest restoration. It's conditioned with rising energy prices, low solvency of the socially disadvantaged, and low levels of public education and awareness of the forest. At present, about 70% of the natural forests of the Republic of Armenia are degraded and aged, relatively hard to reach mature and super-mature forests have significant wood resources, which are deprived of many types of forest use due to the fragmentation and difficult access.

The main institutional and legislative issues hindering the development of the forest sector are:

1. Weaknesses of the National Forest Program, including measures and mechanisms for the implementation of the national forest policy.
2. Imperfection of institutional structures of forest management and necessary measures to improve sustainable forest management.
3. Existing contradictions of the legislative field regulating the measures implemented in the forest sector.
4. Inefficient use of income from forest resources.
5. Insufficiency of financial and technical funds provided from the state budget to the forest sector.

## Previous programmes and interventions related to Pasture and LD

#	Name of Project or Initiative	Agencies / Years of implementation	Relevant Lessons Learnt
1	"Community Agricultural Resource Management and Competitiveness (CARMAC, Second Program)"	World Bank Ministry of Economy (former Ministry of Agriculture) 2015-2022	The main objectives of the second CARMAC project are to improve the productivity and sustainability of pastures and livestock systems in the target communities and to increase the marketable products of selected livestock and high-value agri-food value chains.
2	Project "Forest resilience of Armenia, enhancing adaptation and rural green growth via mitigation"	FAO, Ministry of Environment  (8 years)	
3	Project "Enhancing of Adaptive Capacity of Communities and Ecosystems Adjacent to Specially Protected Areas of Nature of Armenia"	Ministry of Environment 2019-2022	
4	Pilot project "Implementation of Land Degradation Neutrality concept in Ararat valley of Armenia"	UNEP Ministry of Environment 2017-2019	In August 2018, with the support of the Secretariat of the UN Convention to Combat Desertification of the Republic of Korea, a pilot project "Implementation of the Concept of Neutrality of Land Degradation in the Ararat Valley of Armenia" was launched, which is implemented by the Ministry of Environment.
5	Project "Livestock Development in the South of Armenia"	Swiss Agency for Cooperation and Development Strategic Development Agency, in partnership with Ministry of Territorial Administration and Emergency Situations, Ministry of Agriculture 2006-2021(four phases)	Improving the ability of female and male farmers to use new approaches and methods in farm management, strengthening and developing the capacity of meat and milk value chain participants involved in animal husbandry to provide advisory and information services. As well as by implementing separate advisory measures aimed at increasing the productivity of farms (training, exchange of experience, individual counseling, etc.).
6	Project "Livestock Development in Armenia: South-North"	Swiss Agency for Cooperation and Development, Austrian Development Agency (ADA) Ministry of Environment 2018-2021	The long-term goal of the program is to increase incomes and reduce poverty in the target communities through sustainable development of the livestock sector and improved market access.
7	Project "Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus (ECOserve)", implemented in Armenia, Azerbaijan, and Georgia.	German Federal Ministry for Economic Cooperation and Development (BMZ) GIZ with Ministry of Territorial Administration 2018-2021	The main directions of the ECOserve program in Armenia are sustainable pasture management and energy efficiency / alternative energy. The goal of the project is to apply sustainable natural resource management approaches to balance their use and conservation by promoting the protection of biodiversity and mitigation of climate change.
8	Project "Integrated Biodiversity Management in the South Caucasus", implemented in Armenia, Azerbaijan, and Georgia.	German Federal Ministry for Economic Cooperation and Development (BMZ) GIZ with Ministry of Territorial Administration 2015-2019	The aim of the project is to develop strategies for sustainable management of biodiversity and ecosystem services in sectoral and administrative frameworks.
9	Project "Support Programme for Protected Areas – Armenia (SPPA-Armenia)"	German Financial Cooperation (GFC) through KfW Development Bank Ministry of Environment 2015-2020	The primary goal of the program is to preserve the natural resources of 7 protected areas of Syunik marz of the RA and to improve the management of those areas without having a negative impact on the livelihood of the local population.
10	Project "Mapping of grassland extent, condition and biomass in Armenia"	German Federal Ministry for Economic Cooperation and Development (BMZ), ICARE foundation GIZ with Ministry of Territorial Administration 2020-2022	The project aims to map the grass-covered and non-grass-covered areas in Armenia in 2020, to assess the possibilities of these areas becoming pastures or grass-covered meadows, and to describe the condition of Armenia's grasslands and biomass productivity by mapping.



- “Community Agricultural Resource Management and Competitiveness (CARMAC, Second Program)”.
- “Livestock Development in the South of Armenia” and “Livestock Development in Armenia: South-North” projects, which are implemented by “Strategic Development Agency” NGO.
- “Support Program for Protected Areas-Armenia” project.
- “Integrated Biodiversity Management in the South Caucasus”, project by the German Society for International Cooperation (GIZ),
- “Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus (ECOserve)” project, implemented by the German Society for International Cooperation (GIZ),
- “Expansion of adaptive capacities of ecosystems adjacent to specially protected areas of Armenia” project, implemented by the Ministry of Environment

The above-mentioned programs in their planning and software functions with different components directly refer for creating and ensuring sustainable management of natural resources, localization, and implementation of practical procedures aimed at preventing land degradation, improvement, and rehabilitation of degraded ecosystems, implementation of projects with various procedures aimed at sustainable management and conservation of ecosystems in general. To increase the efficiency of the implemented programs, to implement large-scale projects with possible cooperation and additions, different program units sign memoranda of cooperation to make the implementation of the program goals easier. As a result of such cooperation, in 2018, the “The Program Coordination Platform for Sustainable Management of RoA’s Natural Fodder Areas: Pastures and Grasslands” was established, co-funded by the Strategic Development Agency, the German International Cooperation Agency and the second CARMAC Project implemented by the Ministry of Economy. The basis for the creation of the platform was the need to promote effective cooperation, exchange of information, and coordination of program activities between programs for sustainable management of pastures and grasslands. Since 2018, the Platform has expanded its staff; now more than 10 organizations, buildings, programs, public administration bodies and scientific and educational institutions are participating in the work of the Platform, which is pursuing a goal to jointly ensure the viability of investments in the field of animal husbandry programs aimed at the preservation of natural fodder fields, to expand the economic opportunities of the communities and contribute to the growth of incomes from livestock products, as well as to promote the effective and sustainable management of natural fodder fields.

The goals of the “The Program Coordination Platform for Sustainable Management of RoA’s Natural Fodder Areas: Pastures and Grasslands” are:

- In the system of program activities, including exchange of information and experience, work planning
- Identification of possible areas of cooperation
- Implementation of joint programs and program activities
- Assistance in the development and improvement of relevant state policies and legislation for the sustainable use and management of natural fodder fields.

Since the establishment of the platform, the aim has been to promote the improvement of the legislative framework regulating the process of natural fodder field management and the institutional system, which will promote the implementation of an effective and joint mechanism of pasture management in Armenia. The concept of sustainable pasture management in the Republic of Armenia has been developed to achieve the goal, on the basis of which the RA Ministry of Economy has developed a draft decision approving the RA Government. The developed project will be submitted to the Government by the RA Ministry of Economy for approval. Various programs are currently being implemented in Armenia, some of which include the target regions and selected communities. Launched and implemented projects with different components related to pastures and forest management, as well as issues related to mitigation of land degradation and biodiversity conservation.

*(The targeted pastures/grasslands and forest resources are further described under **Annex 16 Target Project Landscape**)*

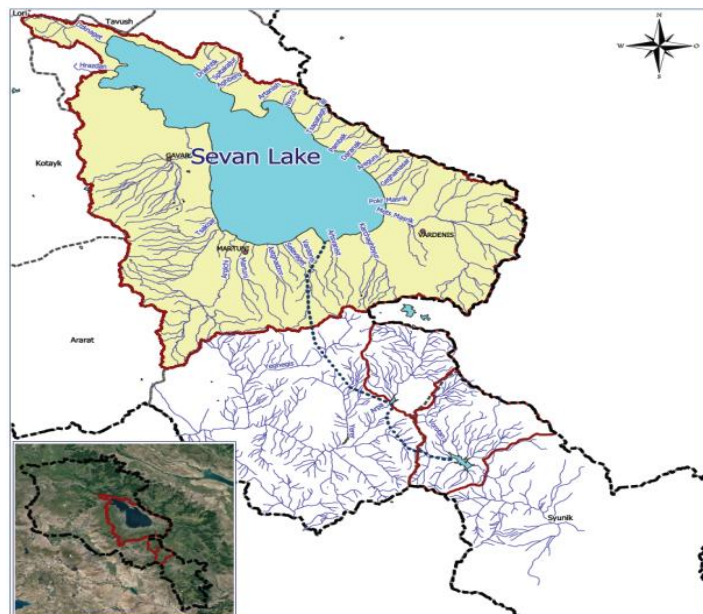
## Baseline analysis on the Status of Water resources in Gegharkunik and Vayots Dzor regions

*(based on excerpts from the PPG Expert Water Resources and Irrigated Land Management Report and Sevan River Basin Management Plan)*

The ecosystem of Lake Sevan has a strategic significance and economic, social, scientific, historical-cultural, esthetical, recreational, and spiritual value for the Republic of Armenia. Currently, the lake is an important water source for irrigation, hydropower, and recreational uses. In addition to environmental, economic, and strategic importance, the role of the lake is extremely important for mitigation of irrigation water deficit. Particularly, releases from the lake help in supplying additional water to the basins of Aparan and Marmarik Reservoirs, and the agricultural lands areas of Ararat valley and adjacent sub-mountainous zones. The level of Lake Sevan fell dramatically due to excessive use during the period from 1930 to the 1980s, resulting in serious environmental and ecological problems, including deterioration of water quality, destruction of natural habitats, and loss of biodiversity. Starting in the 1980s, programs to stabilize and raise the lake level were initiated. This includes the construction of the Arpa-Sevan and Vorotan Arpa tunnels, transferring up to 250 and 165 million m<sup>3</sup>, respectively, and outflow limits up to 170 million m<sup>3</sup> per year. As a result, the level of Lake Sevan has been steadily rising since 2001. Economic activities in and around Lake Sevan are the sources of many pollutants, including the flow of excess nutrients into the lake, resulting in significant changes that ultimately induced the lake's eutrophication. Worsening of the water quality will eventually result in a collapse of the ecosystem, leading to grave environmental & economic repercussions for the energy, tourism & fisheries sectors. This would put the livelihood of great many at stake.

In order to save the lake and its ecosystem, urgent measures should be taken, and the first thing to do is establishing the efficient management framework for the lake's basin. Achieving sustainable water management requires a multidisciplinary, holistic approach that addresses technical, environmental, economic, societal and cultural issues.

The Basin of Lake Sevan is the area from where surface and groundwater flows to the main Lake. According to the "Law on the Lake Sevan" of RA, Kechut and Spandaryan Reservoirs, as well as the catchment basins of Arpa and Vorotan Rivers are also considered as the part of Lake Sevan watershed area as the water reaches Lake Sevan through the Arpa-Sevan tunnel, water transfers will be considered as inputs or outputs during the calculation of the water balance.



### Gegharkunik region

The basin of the Lake Sevan covers 1/6th of the total territory of Armenia. The surface area of Sevan RBD is 4721 sq. km. Sevan RBD surrounded by Geghama Mountains (from West), Vardenis Mountains (from South), Areguni Mountains (North-East) and Sevan and East Sevan (East) mountain ranges with elevations up to 3598 m (Vardenis). Sevan RBD spreads from 39°52' to 40°41' of Northern latitude and from 44°45' to 45°59' of Eastern

longitude. The maximum stretch from South to North is 90 km, from East to West – 103 km. One of the peculiarities of Sevan RBD is the small ratio between the catchment area and the surface area of the Lake (3:1) compared to other major lakes (10:1 in average) (Babayan et. al., 2006).

Sevan is a high-mountain lake located on the altitude of 1900.65 m above the sea level. Lake Sevan is in the fifth place among the major high-mountainous lakes in the world in terms of altitude and surface area, (after the lakes Titicaca (Bolivia, Peru), Poopo (Bolivia), Namtso (China) and Qinghai (China)).

According to LA Chilingaryan and co-authors (Chilingaryan and others, 2002), there are three types of rivers in the Sevan RBD:

- Rivers flowing from the eastern slopes of Geghama and part of northern slopes of Vardenis mountain range (Gavaraget, Vardadzor, Lichk, Tsakkar, Bakhtak, Karchaghbyur, as well as part of Argichi River in its middle and lower flows) are receiving enough feeding from groundwater although in the upper flows prevails snowmelt and rainfall feeding.
- Masrik River in its middle and lower flows fed from groundwater accumulated in the alluvial-proluvial sediments of Masrik Plain.
- The rest of the rivers have mainly snowmelt-rainfall feeding. These include rivers flowing into the lake from the north-east coast (Dzknaget, Drakhtik, Spitakajur, Artanish, Jil, Shampirt (Tsapatagh), Pambak, Daranak, Areguni and others), as well as upper flows of the rivers of two types described above.

**Table 1. Hydrological characteristics of the river system in Sevan River Basin District (RBD)**

River	Monitoring Site	Watershed Characteristics		Annual Flow Characteristics			
		Watershed Area, km <sup>2</sup>	Average Altitude, m	Average Flow, m <sup>3</sup> /sec	Flow Volume, mln. m <sup>3</sup>	Average Flow Module, l/sec x km <sup>2</sup>	Flow Layer Height, mm
Dzknaget	Tsovagyugh	82.6	2202	1.08	34.06	13.08	412.34
Drakhtik	Drakhtik	39.2	2247	0.24	7.57	6.12	193.08
Pambak	Pambak	20.4	2536	0.21	6.62	10.29	324.64
Masrik	Tsovak	673.0	2319	3.31	104.38	4.92	155.10
Karchaghbyur	Karchaghbyur	116.0	2521	1.03	32.48	8.88	280.02
Vardenis	Vardenik	117.0	2759	1.53	48.25	13.08	412.39
Martuni	Geghhovit	84.5	2761	1.66	52.35	19.64	619.52
Argichi	V. Getashen	366.0	2470	5.39	169.98	14.73	464.42
Tsaghkashen	Vaghashen	92.4	2562	1.52	47.93	16.45	518.77
Lichk	Lichk	33.0	2497	1.88	59.29	56.97	1796.60
Bakhtak	Tsakkar	144.0	2514	0.64	20.18	4.44	140.16
Gavaraget	Noratus	467.0	2432	3.49	110.06	7.47	235.68
Arpa-Sevan tunnel	Tsovinar	-	-	3.75	118.26		

**Maximum Flow:** Maximum river flows within Sevan RBD are primarily observed during spring high water period. In general, the maximum flows of almost all rivers are formed due to a rapid snowmelt. Sometimes the waters of spring heavy rainfalls are added to that. The value of maximum discharges formed from snowmelt depends not only from the accumulated snow reserve, but also from duration and intensity of snowmelt. Studies have shown that the maximum discharges of the rivers with mixed feeding are mainly formed in case of the intense rainfall with daily values of more than 15-20 mm.

It is calculated that in general the module of average value of maximum flow are greater than the module of annual average flow by 4-5 times. However, in case of small rivers the module of average value of maximum flow is 10-15 times greater than the annual average flow module (for example: Drakhtik - 24.3, Geghamasar - 17.0, Tsapatagh - 14.9, Areguni –13.4 times).

**Minimum flow:** Minimum flows are observed during summer-autumn and winter low water periods. It should be noted that the minimum discharge values of summer-autumn low water period are distorted due to high amount of water abstraction for agricultural purposes. For this reason, small rivers (in particular the rivers sourcing from Sevan and Areguni mountain ranges) are sometimes drying up in their low flows during the summer.

Decrease of the level of Lake Sevan started in 1933 and continued until 1981. The decrease of Lake Sevan's water level at the end of 1980 was about 18.5 m. The negative effects of the decrease of the water level were evident especially in Major Sevan. In the 1970s, it was decided to stop the water discharge and gradually raise the level in order to save the lake. The plan was to increase the level of the lake by 6 m. In order to ensure the optimal level of the lake, Arpa-Sevan tunnel (48,3 km, 1963-81) was constructed, which was supposed to annual transfer about 250 mln. m<sup>3</sup> of water from Arpa River (its tributary Yeghegis) to Lake Sevan. The tunnel was put into exploitation in 1981. Also, construction of Vorotan-Arpa tunnel (21,6 km) has been completed in 2004, which transfers annually 165 mln. m<sup>3</sup> of water from Vorotan River to Lake Sevan. From 1981-2001, the level of the lake was increased (after exploitation of Arpa-Sevan tunnel) by 0.9 m (1981-1990), and then again decreased (due to excessive use of waters of the lake) by 1.68 m (1991-2001), reaching its minimum level 1896.32 m. Since then, the level of the lake has been increasing (SHER, 2013). Lake Sevan also has seasonal fluctuations of level. The highest level of the year is observed in July, the lowest is in March. The seasonal variations are about 20-30 cm and depend on the hydro-meteorological conditions of the lake. The Law of RA "On Annual Program of Measures for Restoration, Protection, Natural Development and Use of Lake Sevan Ecosystem" envisages a maximum annual amount of water outlets from Lake Sevan to 170 million cubic meters.<sup>77</sup>

#### Water Resources in Arpa River Basin (Vayots Dzor)

**Table 2. Hydrological characteristics of the river system in Arpa River Basin**

Name of reservoirs	River basin	Year of operation	The height of the dam, m	The total volume, million m <sup>3</sup>	Useful volume, million m <sup>3</sup>	Water mirror surface, ha	use
Aghavnadzor	Arpa	1977	18	0.823	0.823	5.0	O, A
Karaglkh	Reed	1982	20	0.18	0.15	3.5	O, E
Hors	Reed	1987	6.8	0.096	0.080	4.7	O, E
Gndevaz	Arpa	1971	19.0	0.21	0.15	3.0	O, E
Hartavan	Arpa	1971	2.0	0.025	0.020	2.5	O, E
Bardzruni	Jahuk	1978	8.0	0.092	0.08	2.0	O
Martiros1	Arpa	1971	1.5	0.12	0.09	10.0	O
Martiros2	Arpa	1971	3.5	0.041	0.035	0.9	O
Kechut	Arpa	1981	50.0	25.0	3.2	120	B, O
Her-Her	Arpa	1993	74.0	26.0	23.0	122	O, E
Total				52.59	27.63	273.6	

**Maximum flow.** The maximum flows in the Arpa River Basin are formed during spring floods due to snowmelt and rain.

The maximum outflows of spring floods sometimes reach catastrophic proportions. The largest maximum discharge of the Arpa River was observed in 1969 - 340 m<sup>3</sup>/sec. Catastrophic flows have a higher frequency in the Arpa River Basin.

**Minimum flow.** The study of minimum outputs is important for the assessment of environmental flows. For comparison, only the average monthly minimum discharges were studied from the characteristics of the minimum river discharges of the Arpa river. For example, the largest average monthly minimum output of Arpa-v. Areni observation point - 13.27 m<sup>2</sup>/sec was observed in 2013. in December, and the smallest - 5.62 m<sup>2</sup>/sec, 2001 in November.

<sup>77</sup> "Sevan River Basin Management" EU funded project EUWI+

### Water use patterns and estimated water management efficiency in production landscapes of Lake Sevan Basin

Agriculture is one of the leading sectors of economy (12.7 %) in the Sevan RBD. The agricultural lands occupy about 56% (264,360 ha) of the total land of the Sevan RBD, out of which 224,200 ha are grasslands and pastures, 40,170 ha - arable lands.

The agricultural land distribution across the main river basins is presented in Table 7.1. As it is seen from that table, the largest areas of agricultural lands are located in Masrik (24.7%), Gavaraget (17.5%), Argichi (12.5%), Pokr Masrik (2.7%), Bakhtak (5.8%), Lichk (1.3%) river basins. The other river basins together hold over 35.5% of total agriculture lands. Masrik holds about 52% of total arable lands, followed by Argichi (17.5%) and Gavaraget (8.6%). The largest grasslands are also located in Masrik (21.1%), Gavaraget (18.6%) and Argichi (11.8%) river basins.

**Table 3. Agriculture land by river basins**

River basin	Land area per river basin, ha	
	Arable lands including small-size household farms	Grasslands and pastures
Masrik	12,825.4	39,944.7
Argichi	4,324.3	22,308.8
Gavaraget	2,123.7	35,175.9
Pokr Masrik	1,750.4	4,075.9
Bakhtak	977.1	11,422.0
Lichk	942.5	1,863.7
Others	1,699.8	74,099.0

The agricultural production in the RBD is focused on the crops and potatoes, followed by livestock (cows, sheep and pigs). In the Sevan RBD the main crops are grains which are cultivated on about 44% of the cultivated land, 14.7% are fodder crops and potatoes.

**Gegharkunik Water Users Association (WUAs)** supplies and serves agricultural lands in the Sevan RBD. The total service area of the WUAs is 3742 ha. The irrigation infrastructure consists of about 19 secondary irrigation canals, which provide water from rivers and springs (Table 23). As of January 2018, the permitted annual water use for irrigation purposes in the RBD comprised 10356,242 thousand m<sup>3</sup>, which is almost 3.65% of the total permitted water use. Due to the poor condition of the irrigation infrastructure, water losses in the network currently comprise about 50%.

According to the statistical data<sup>78</sup>, the total annual input of mineral fertilizers (nitrogen, phosphorus, potassium, etc.) is amounted to 21,000 tons which is 22.6% of the national total (93,019 t). Fertilizers are used only on permanent croplands, with about annual average area of 8000-10000 ha cropland treated by fertilizers. There is no data available on the organic fertilizers in the basin. From 2012 through 2017 total annual consumption of pesticides has not changed noticeably on average 400 t (1.4 t / ha). In 2017, the total area treated with pesticides was 272, 400 ha which is 57% of agricultural lands in the Sevan RBD.

To assess pesticides' impact on water resources the data on monitoring required. Monitoring data of pesticides is generally poor. Key pesticides are included in the monitoring schedule of Armenia (RA government resolution, 75-N, 27.01.2011), however the cost of analysis and the necessity to sample at critical times of the year (linked to periods of pesticide use) often preclude development of an extensive data set. Information on type s of used pesticides is not available.

### Vayots Dzor

In Arpa River Basin, more than half of the agricultural lands are pastures and grasslands. Grain crops, vineyards and orchards, as well as cattle breeding are widespread. In addition to animal husbandry, greenhouses are

<sup>78</sup> Statistical Committee of the Republic of Armenia. Comprehensive Agricultural Census of the Republic of Armenia for Gegharkunik Marz. 2014.

gradually expanding, which allows the population to be supplied with fresh vegetables all year round. From the point of view of land use assessment in the Arpa River Basin, the predominant part is agricultural lands, arable lands, forests and shrubs, which together make up a significant part of the Arpa River Basin. Land use for other purposes (urban, industrial, etc.) makes up a small part of the total area.

Most of the agricultural lands in the river basin are located in areas with a slope of up to 7-8 °, which are suitable areas for agricultural use. Most of the land is on slopes of up to 15 ° in restricted areas. Glaciers, salt marshes, rocks, cliffs, rock formations, etc. occupy a certain area.

The water use for irrigation in the Arpa River Basin was 73.2 million m<sup>3</sup>, or 2.32 m<sup>3</sup> / s. 5.8 thousand hectares of land were irrigated. The water supply is provided by " **Yeghegnadzor** " **Water Users Association**. Water intake is mainly from surface water.

**Water use for irrigation.** In Arpa river basin, according to the Ararat RMC management plan, 2015 as of January 2013, the total water use was 952.5 million m<sup>3</sup>, which was mainly for hydropower purposes, accounting for 89.5% of the total water use. Water use for irrigation was 7.7% of the total. The total water intake in the river basin without hydropower was 100.3 million m<sup>3</sup>, 73% of which was used for irrigation.

Diffuse source pollution is caused by widespread activities such as agriculture and other sources. The levels of diffuse pollution are not only dependent on anthropogenic factors such as land use, and land use intensity, but also on natural factors such as climate, flow conditions and soil properties. These factors influence pathways that are significantly different. For N, the major pathway of diffuse pollution is groundwater while for P it is erosion. The emission of substances from diffuse sources cannot be easily measured. The emissions estimation of diffuse source pollution for Sevan Basin is only possible by mathematical modeling. The main contributors for both N and P emission are settlements not served by sewerage collection and wastewater treatment. For N pollution, the input from agriculture (fertilizers, manure, fish cages) is the most important. For P, emissions from agriculture (area under cultivation, erosion, detergents, fish cages, livestock manure) are the second largest source after municipal wastewaters.

#### Cultivation of Agricultural Crops and Use of Fertilizers

About 11.6% of agricultural lands in the Sevan RBD are arable lands. In 2017, 30,000 ha of arable lands of the river basin were cultivated. Grains crops accounted for 44% of the agricultural crops in the Sevan Basin. The most cultivated lands are located in the Masrik, Gavaraget and Argichi River Basins. According to the information obtained from the Gegarkunik province 2000 tons of mineral fertilizers were used for agricultural crops in the river basin in 2017. Fertilizers were used only on permanent croplands, with about annual average area of 8000-10000 ha cropland treated by fertilizers. There are no data available on the organic fertilizers in the basin. About 2000 kilograms of mineral fertilizers were applied for 1 ha which is similar to on average 150-200 kg required value for 1 ha with similar agricultural crops. Based on information that fertilizers are applied evenly on agricultural lands across the RBD, and based on figures available on agricultural lands and total fertilizers applied, it is proposed to conduct more studies aimed at revealing the impacts of nitrogen fertilizers used in the in Sevan RBD on water quality.

**Anthropogenic Impact Assessment in the Arpa River Basin.** Human economic activity affects both the environment and the quantity and quality of water resources. The quality and regime of water resources in the Arpa River Basin is affected by communal-domestic water, irrigation water, return flows from industry, agriculture, cattle-breeding, hydraulic structures, etc. Reservoirs, which artificially regulate the hydrological regime of rivers, have a great impact. By storing spring flood flows, they reduce the harmful effects of maximum outflows on riverbeds below the reservoir.

River flow regime is affected by the inter-basin transfer of river flow.

#### **Irrigation assessment and water stress**

Irrigation infrastructure in the Arpa River Basin is dilapidated. Irrigation methods used (mostly surface) are not up to date, resulting in total water losses of up to 40-50%. During the summer-autumn period, the river water is overused for irrigation, as a result of which the ecological flow in the lower and middle reaches of the Yeghegis River is not maintained. As a result, the ecological balance in the mentioned sections of the rivers is completely disturbed.

Thus, the water intake for irrigation in the Arpa river basin puts significant pressure on the ecological condition of the quantity of water resources, in the Yeghegis river, c. from Hermon to Arpa.

**Table 4 Projected changes and temperatures in precipitation according to climate change scenarios**

Parameter	1961-1990	2011-2040		2041-2070		2071-2100	
		RCP6.0	RCP8.5	RCP6.0	RCP8.5	RCP6.0	RCP8.5
Temperature, °C	5.5	+1.7	+1.8	+2.3	+3.2	+3.1	+4.7
Precipitation, mm /%	592/100	+ 18.9 / + 3.2	+ 6.9 / + 1.2	+ 13.0 / + 2.2	+ 30.7 / + 5.2	+ 22.0 / + 3.7	+ 4.0 / + 0.7

In Sevan basin, changes in surface flow in different river basins are of a different nature. The most dramatic decrease in surface natural flow compared to the baseline period (1961-1990) is predicted in Drakhtik (up to -64.8%), Dzknaget (up to -62.8%), Argichi (up to -56%), Karchaghbyur (up to -41%) and Tsaghkashen (up to -42.5%), and the biggest increase is predicted in Lichk (up to +36.6%), Vardenis (up to +20.2%) and Masrik (up to +17.6%) river basins. Thus, climate change impacts should be considered in the planning and assessment of water demand and supply in the future.

In the Arpa basin, the river flow decreases from 1.7 to 7.1%. Only in its Yeghegis tributary basin there is a 1.5-4.5% increase in river flow, mainly due to the presence of forested areas in these areas, with less evaporation. At Arpa-Aren observation point, the flow decreases in all seasons, while in Jermuk, only in summer, by about 11%, due to the increase in summer temperatures. At Yeghegis-Hermon observation point, the river flow increased by 11.5% in the spring, which is presumably due to the increase in temperature observed during the winter season, and consequently due to the increase of melting water from snow spots and snow layers in the mountainous areas. There is a tendency to decrease the daily flow in the Arpa-Yegheznadzor river sections, and in the Arpa-Jermuk, Yeghegis-Hermon, Yeghegis-Shatin and Arpa-G. Aren sections.

Armenia is considered as a country with high baseline water stress by the World Resource Institute and is ranked as the 34th most water stressed country among the 164 UN member countries. According to the Organization for Economic Co-operation and Development (OECD), Armenia is a country with low water availability, and subject to water stress with 45% water exploitation. Whereas the main water user in Arpa and Sevan RBDs is agriculture; therefore, water adaptation measures for farmers need to be introduced.

In this regard, the irrigation systems through introduction of modern water-saving technologies (drip irrigation, micro-sprinkler, less energy-spending systems) and leakage reduction should be prioritized. In addition, identification and implementation of effective agro-technical measures for maintenance of soil humidity and reduction of evaporation volumes in the context of forecasted climate change is needed. This includes:

- Substitution of high-water demanding crops with drought tolerant and resistant species
- Crop rotation
- Using organic mulch and bio humus
- Developing agroforestry
- Restoration of forested areas

In addition, it is recommended that trainings should be conducted for farmers to introduce water adaptation measures to climate change with regards to the above-mentioned topics.

*(The targeted irrigated land are further described under **Annex 16 Target Project Landscape**)*

#### Past initiatives and programmes in water sector

##### **Model Guidelines for River Basin Management Planning in Armenia, 2008:**

These guidelines have been prepared by the USAID / PA Program for Institutional and Regulatory Strengthening of Water Management in Armenia and its subcontractor consortium of "Geocom Ltd." and "Kapan Communities' Union" NGO in collaboration with water sector stakeholders in Meghriget River basin. The purpose of the prepared Model Guidelines for River Basin Management Planning in Armenia is to provide water management

authorities with practical, user-friendly tools for the development of river basin management plans in Armenia. Meghriget River Basin was selected as a pilot basin for the project.

#### **Transboundary River Management for the Kura River - Phase II, 2008-2011:<sup>79</sup>**

This EU-funded project with budget 5.2 million EUR was aimed at improving the water quality in the Kura River basin through trans-boundary cooperation and implementation of the integrated water resources management approach. The project supported the development of a common monitoring and information management system to improve transboundary cooperation and enhanced the capacities of environmental authorities and monitoring establishments engaged in long-term integrated water resources management in the Kura River basin.

#### **Reducing Transboundary Degradation in the Kura- Ara(k)s River Basin, 2011-2014:<sup>80</sup>**

UNDP / GEF-funded Project for Reducing Degradation in the Kura- Ara(k)s River Basin addressed transboundary water resource and environmental issues towards the sustainable management of the basin, as identified in priority sequence through the completion of the Transboundary Diagnostic Analysis (TDA) process and addressed in an agreed Strategic Action Program (SAP) of policy, legal and institutional reforms, and priority investments. GEF funding was used for finalization of the comprehensive TDA and SAP, and the implementation of targeted water quality demonstrations identified as priorities in the preliminary TDA/SAP. The SAP development was closely linked to national IWRM plans.

#### **Clean Energy and Water, 2011-2014:<sup>81</sup>**

ME&A (Mendez England and Associates) was implemented by the USAID funded Clean Energy and Water Program (CEWP) in Armenia. This \$ 5.6 million program provided support to the Government of the Republic of Armenia in its efforts to enhance Armenia's energy and water security and improve climate resilience through improving integrated energy and water resources planning. The CEWP worked at the community-level to improve energy and water management practices through capacity building and the implementation of small-scale pilot demonstration projects to demonstrate to public and private sectors, and to communities the benefits of applying new approaches and innovative technologies.

The CEWP has introduced technical tools and mechanisms for improving integration management of the country's water resources and developed a **Decision Support System (DSS)**, to provide analytical information for river basin management planning and water use permitting. The DSS, a customized **geographic information system (GIS)-based application**, is capable of generating sophisticated hydrological, economic, and climate change models for threatened rivers and water basins throughout Armenia. Pilot **basin management plans** for 3 rivers within Southern RBD of Armenia were developed within the scope of this project.

#### **Draft Management Plan for Akhuryan River Basin District (Akhuryan and Metsamor River Basins), 2011-2015<sup>82</sup>**

This EU-funded project was implemented within the framework of "Environmental Protection of International River Basins" Project (Contract No. 2011/279 - 666) by the consortium led by Hulla & Co. Human Dynamics KG. The Draft Basin Management Plan for the Akhuryan River Basin District (RBD) was developed according to methodology of the EU WFD. The aim of the draft plan is to improve the common understanding of the authorities responsible for water management, the administration, the politicians of the Akhuryan RBD and the public in general an understanding of the advantages and disadvantages of the WFD methodology, as well as to increase technical capacities by means of development and implementation of RBMPs.

#### **Feasibility of the Master Plan for Integrated Water Resources Management in the Six Water Basin Management Districts of Armenia, 2013:<sup>83</sup>**

Feasibility study for the water resources management in the 6-basin management area conducted by SHER Ingenieurs - Conseils for the WRMA (currently, Department for Licenses, Permits and Compliances).

The general objective of the study is to assist in the development of more effective management and regulatory mechanisms in the field of water sector management. The specifics objectives are:

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<sup>79</sup> <https://www.euneighbours.eu/en/east/eu-in-action/projects/transboundary-river-management-kura-river-phase-ii>

<sup>80</sup> <http://kura-aras.iwlearn.org>

<sup>81</sup> <http://sbaic.org/usaidarmenia-funded-clean-energy-and-water-program-implemented-by-mea/>

<sup>82</sup> <http://blacksea-riverbasins.net/en/pilot-basins/akhuryan-basin-akhuryan-and-metsamor>

<sup>83</sup> <http://www.sher.be/en/page/download-the-description-of-master-plan-for-integrated-water-resources-management-in-armenia.html>



- to verify how the Armenian water sector organization complies with the EU WFD
- to analyze decentralization issues; and
- to propose a sustainable water sector management system

#### **Advanced Science & Partnerships for Integrated Resource Development (ASPIRED), 2015-2020:<sup>84</sup>**

ME&A (Mendez England & Associates) currently implements the Advanced Science & Partnerships for Integrated Resource Development (ASPIRED) Project for the USAID Mission in Armenia .

The purpose of the ASPIRED Project is to support sustainable water resource management and sustainable practices of water users in the Ararat Valley through the use of science, technology, innovation and partnership initiatives. The ultimate goal is to reduce the rate of groundwater extraction in the Ararat Valley to sustainable levels.

#### **The Shared Environmental Information System (ENPI-SEIS) Project, 2010-2015 <sup>85</sup>and Implementation of the Shared Environmental Information System (SEIS) principles and practices in the ENP East region (ENI-SEIS II EAST) Project, 2016-2020<sup>86</sup>**

The European Environment Agency (EEA) and Zoï Environment Network are engaged in the implementation of a project for improving environmental monitoring and information sharing in the European Neighborhood Policy (ENP) countries and the Russian Federation. The aim was to gradually extend the Shared Environment Information System (SEIS) principles. The main outcomes of the ENPI-SEIS project will address the three SEIS components - cooperation, content and infrastructure - through enhanced networking with the national capacities on environmental information. Furthermore, that should promote open public access to information through compatible and freely available exchange tools.

The pilot project was initiated by the national authorities and supported by the European Environment Agency, aiming at establishing small scale SEIS for the Lake Sevan basin in Armenia. A background paper on Lake Sevan has been prepared to provide baseline information and data flows available for the basin, and to develop and implement small scale SEIS for Lake Sevan in Armenia. It describes existing environmental issues in the basin, as well as ongoing monitoring activities by various organizations and their products and access conditions.

#### **Participatory Utilization and Resource Efficiency of Water in the Ararat Valley (PURE Water), 2017-2020:<sup>87</sup>**

The project is funded by USAID and implemented by Urban Foundation for Sustainable Development. Project supports the development of a policy and regulatory framework for improved access to water, facilitates participation and oversight of integrated water management practices in target communities, raises public awareness of water related issues, and fosters water-related behavioral change among water stakeholders in Ararat Valley.

#### **EUWI Plus EAST Project:<sup>88</sup>**

The project helped Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine bring their legislation closer to EU policy in the field of water management, with a main focus on the management of trans-boundary river basins. It supports the development and implementation of pilot river basin management plans, building on the improved policy framework and ensuring a strong participation of local stakeholders.

**The main objective of the project** is to improve the management of water resources, in particular transboundary rivers, developing tools to improve the quality of water in the long term, and its availability for all.

More specifically, the project aims to support partner countries in bringing their national policies and strategies into line with the EU Water Framework Directive: and other multilateral environmental agreements.

Targeted results of the Project are:

**Result 1:** legal and regulatory framework improved in line with the WFD, Integrated Water Resources Management and Multilateral Environmental Agreements.

<sup>84</sup> <http://www.aspired.wadi-mea.com>:

<sup>85</sup> <http://seis-sevan.am>:

<sup>86</sup> <https://eni-seis.eionet.europa.eu/east/governance>:

<sup>87</sup> <http://urbanfoundation.am/archives/2201>:

<sup>88</sup><http://euwipluseast.eu/en/countries/armenia>:

Result 2: River Basins Management Plans designed and implemented in line with the WFD principles.

Result 3: Lessons learnt are regularly collected, shared and communicated to stakeholders.

The model outline for river basin management plans was upgraded with the support of the EUWI Plus EAST Project and adopted by the Resolution №45.6 of the Government of RA.

### **Feasibility of the project interventions in the Pastures/Grasslands, Irrigated farmland and Forest areas**

#### **Feasibility of the project interventions in the Irrigated areas**

EFFECTIVE MANAGEMENT OF IRRIGATED LAND IN SELECTED SETTLEMENTS, INCLUDING MAINTENANCE OF WATER INFRASTRUCTURE, WORK OF MULTI-STAKEHOLDER WATER USER GROUPS (COMMUNITY INVOLVEMENT), INTRODUCTION OF BEST PRACTICES IN IRRIGATION TECHNOLOGY

**The aim is to** develop Integrated Water/Land Management Plans for the restoration and improvement of land and water use in 10,000 ha of selected areas in Gegharkuniq and Vayots Dzor marzes.

The irrigation systems in the marzes were built 60-70 years ago, and in many places the deterioration of the concrete canals is so substantive that they have turned into land channels, leading to a large loss of flow from the irrigation canals and a rise in the water table.

In both the selected marzes and in Armenia, water demand in the agricultural sector will gradually increase in the coming years, resulting in reduced water availability for biodiversity and ecosystem services.

As a result of climate change (current and predictable), projected increases in air temperature and evaporation rates and projected decreases in precipitation and river flows with a negative impact on water resources will lead to more arid conditions.

Water demand on selected irrigated land is expected to increase by 20-30% in the next decade. Water demand per hectare of irrigated land will increase by about 20%. By 2040, irrigation rates for major crops will increase by 10-15%, so there will be a demand for additional water resources without an increase in irrigated land.

Given the degree of degradation and salinization of irrigated areas, more water will be used per hectare on a seasonal basis (perhaps more than 1.2-1.4 times). Deterioration of water security will hamper access to water and affect food security for decades to come.

As a result of climate change, as well as the geographical location of certain areas, the biodiversity of the Lake Sevan watershed will become vulnerable. The area depends on the conservation of important ecosystem services, including natural services related to water conservation and climate change stabilization.

The project work under this component will lead to the improvement of 10,000 hectares of irrigated land as part of sustainable water management planning in selected communities of Gegharkuniq and Vayots Dzor marzes.

The efficient use and protection of water resources is very important for Armenia, where resources are diminishing and vulnerable to climate change, and where water scarcity and aggravation are projected.

As a result of predictable climate change, by 2040, air temperature will rise by another 1-1.5% and precipitation will decrease by 5-10% in parts of Gegharkuniq and Vayots Dzor marzes, leading to a 10% decrease in river flow in the Arpa river basin (in Vayots Dzor marz).

The project will focus on sustainable water management at the agricultural level and the equitable allocation of water to multiple users, considering the minimum ecological flow distribution. The project will seek to identify land degradation due to improper agricultural practices and climate change and causes of water scarcity and will propose solutions.

The selected sites are in the vicinity of or in the areas of SPAs (Special Protected Areas) and KBAs (Key Biodiversity Areas). The degree of anthropogenic changes in natural landscapes is high in the areas of SPAs and KBAs because of intensive use of nature resources.

In the selected areas, the project will support and cooperate with household farms, farm entrepreneurs and local authorities. In lands of the service area of the Water User Associations (WUA) of Gegharkuniq marz in Martuni and Vardenis communities, wheat, barley and potatoes, as well as fodder crops are grown mainly. A small percentage of the orchards are apple and pear trees. In Yeghegis community of Vayots Dzor marz they mainly grow wheat, barley, and fodder crops, while the orchards grow apples, peaches, apricots, walnuts and grapes. In the selected communities of Gegharkuniq and Vayots Dzor marzes, 80-90% of the hydrotechnical structures that are served by the WUAs are 55-65 years old. Due to this, water losses in the service network are significant, about 60-70%.

Large water losses are caused by irrigation canals or deteriorated concrete canals and worn pipes (which cause large water leakage losses), as well as the absence of water meters on water pipes and a lack of modern equipment and methods for irrigation. The scarcity of water resources in the district limits the expansion of irrigated land. Therefore, modern and water-saving technologies, such as sprinkler irrigation, drip irrigation, etc., need to be used to provide water to irrigated lands. Efficient use and management of water resources will be achieved by involving stakeholders in the decision-making process.

#### DESCRIPTION OF IRRIGATED LAND BASED ON CONSULTATIONS WITH STAKEHOLDERS OF SELECTED COMMUNITIES, ASSESSMENT OF WATER USERS' NEEDS, STATUS OF INSTALLATIONS OF WATER RESOURCES AND HYDRO-TECHNICAL STRUCTURES

In April-May of 2022, visits were made to selected settlements/villages to identify and assess the condition of irrigated lands in selected areas, the needs of water users, the state of water resources and hydro-technical structures/installations. In selected communities meetings with target and interested parties: farmers, villagers, representatives of cooperatives, representatives of the WUA, communities and municipalities were held. During the meetings the following issues were discussed:

- *Availability and current condition of hydro-technical structures serving irrigated land*
- *Water measuring problems in hydro-technical structures (whether or not they measure, if so, where and how often)*
- *From the hydro-technical structures to the condition and maintenance problems of water users and water losses*
- *Crop rotation on irrigated land, type of crops, yields and irrigation methods (e.g. conventional)*
- *Needs, constraints, access to water (especially target groups of the poor) land users (farmers, villagers, cooperatives)*
- *Needs for improvement, refurbishment and modernization of hydro-technical structures*
- *Innovative investments in irrigation methods and land user preparedness*

#### **Assessment of irrigated land, water user needs, water resources and hydro-technical structures identified through consultations with stakeholders in the selected communities**

##### **Vayots Dzor marz**

The difficult mountainous terrain, sparse and scattered irrigated lands, and the poor condition of hydro-technical structures prevent the efficient use of irrigated land.

**Yehegis community.** As a result of the April meetings with the representatives of WUA serving Yeghegis Community and Yeghegnadzor of Vayots Dzor marz, it became clear that about 47% of the irrigated land in Yeghegis Community of Yeghegnadzor WUA is actually irrigated. Under the project, the selected irrigated land in Yeghegis community is 480 ha, of which about 226 ha is actually irrigated.

The project selected the land of Taratumb village as the target area from the allocated irrigated land in Yeghegis community, considering the following parameters:

- ✓ *the high degree of land degradation*
- ✓ *low social status of the population and high levels of poverty*
- ✓ *willingness of the inhabitants of settlements to use the innovative land cultivation and irrigation technologies*

- ✓ *availability of sufficient water resources*
- ✓ *availability and condition of hydro-technical structures*
- ✓ *availability of a WUA service.*

The lands of Taratumb village are served by Yeghegnadzor WUA. The hydro-technical facilities maintained by the water management company in the selected target area are in a poor condition, with dilapidated and half-destroyed, with earth canals in some places.

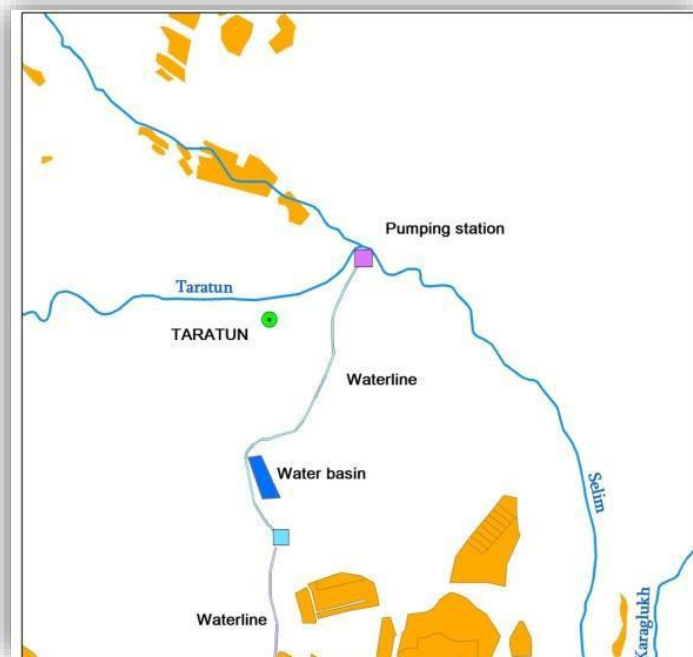
The selected target area has only 52 hectares of land, of which 27 hectares are actually irrigated and 25 hectares are not irrigated due to lack of water supply system.

**Description of the water resources of the selected area.**

The Saliget river flows through the selected area with its small tributaries Hors and Taratumb. The annual flow of the Saliget near Taratumb village is 0.98 m<sup>3</sup>/s. The river flow has high and low water seasons depending on the time of year. The low-water period corresponds to the irrigation period of the summer-autumn season, when water demand is high. During the low-water summer period, the Saliget flow is about 0.060-0.065 m<sup>3</sup>/s, or 60-65 l/s, of which the ecological flow is 0.015 m<sup>3</sup>/s, or 15 l/s, and the river flow is 0.045-0.050 m<sup>3</sup>/s or 45-50 l/s. According to Taratumb village water users and WUA specialists, a water volume of 0.045-0.050 m<sup>3</sup>/s would be sufficient to irrigate 52 ha of land during the irrigation season. Considering that climate change in the region will reduce river runoff by about 10% in the next 20-25 years, the latest water-saving technologies should be used to irrigate land: drip irrigation, replacing earth furrows with polymer layers, etc.

The hydrotechnical facilities of the irrigated land of Taratumb village are in a poor condition and in need of repair. Near the village, at an absolute altitude of 1,594 m on the bank of the Saliget, there is a pumping station which pushes water from the river to the irrigated land. The pumping station building 40m<sup>2</sup>, length 10m, width 4m) is very old, built in the Soviet era (built in the 1960s) and needs repairing, the front door is missing, the windows need replacing, the floor is worn and earthy, and the roof is in a dilapidated condition. There are two pumps in the pumping station building, one of which is working and the other is missing.

During the irrigation season, 50 l/sec of water is delivered to the land from the pumping station, with a pressure up to 90-100 m. Water losses due to the dilapidated state of the pump and pipes are 50-60%. Through the pump, the water rises up to the separator to absolute heights of around 1,680 m, the length of the first section of the water pipeline is 1,150 m, pipe diameter 200 mm. After the divider, the second section of the waterline continues to the last section with an asbestos pipe of 250 mm diameter and is 1,300 m long (Figure 1). In the second part of the waterline the service is carried out through gravity. The 250 mm asbestos pipe in this section is broken in places and / or missing, the water flows through a ground canal.



In the northern part of Taratumb village there is a concrete pool with a volume of about 7,200 m<sup>3</sup> (length 120 m, width 20 m, depth 3 m). The pool is a daily regulator. Previously, the pool was filled with water pumped by a pumping station. Currently, the pool's concrete floor and side structures are worn in places and as a result, it is not in use. The pool can be operated on demolished areas after concreting and polymer coating.

**Fig 1.** Land of Taratumb settlement and location of waterworks

As a result of the repair and refurbishment of hydrotechnical structures and water pipelines, the villagers are willing to irrigate the entire 52-hectare land. After interviews with the head of the village administration and inhabitants, it was clear that they are ready to grow gardens on irrigated land and use innovative irrigation technology.

**The selected area is adjacent to important areas of the Gndasar biodiversity.** At present, these biodiversity areas are being used by the population as nature use areas. As a result, these areas are leading to overuse and degradation. **Irrigation of additional land area will improve the livelihoods and as such will reduce the pressure on use of other natural resources.**

Sustainable use of irrigated lands and water resources in the selected area will help reduce or prevent the degradation of Gndasar biodiversity areas.

**Vayk community.** During the meeting and discussion with community administration staff on 5 May, the state of irrigated land in a number of bordering settlements/villages and the socio-economic needs of residents were identified.

The need for irrigation water is very high in the settlements of the community. Due to the lack of hydrotechnical facilities though having sufficient water resources, a significant amount of land is not irrigated, resulting in socio-economic problems for the inhabitants of the settlements.

There was a proposal from the community to use water from Lake Kaput, which would irrigate about 280-300 ha of land in Kaput, Gomq and Zaritap settlements (located close to the state boarder). As a result of irrigation, the socio-economic situation of the residents will improve. At present, due to the lack of irrigation water, about 90% of the land in Kaput, Gomq and Zaritap settlements is not irrigated.

Under the project, the land of Kaput, Gomq and Zaritap settlements have been selected as target areas from the allocated irrigated land in the Vayk community, taking into account the following principles:

- *the extent of land degradation*
- *low social status of the population and high levels of poverty*
- *near-border location of settlements*
- *residents' readiness to use the innovative land cultivation and irrigation technologies*
- *availability of sufficient water resources.*

The lands of Kaput, Gomq and Zaritap settlements are maintained/served by the community. There are no hydro-technical structures in the selected target area served by WUA.

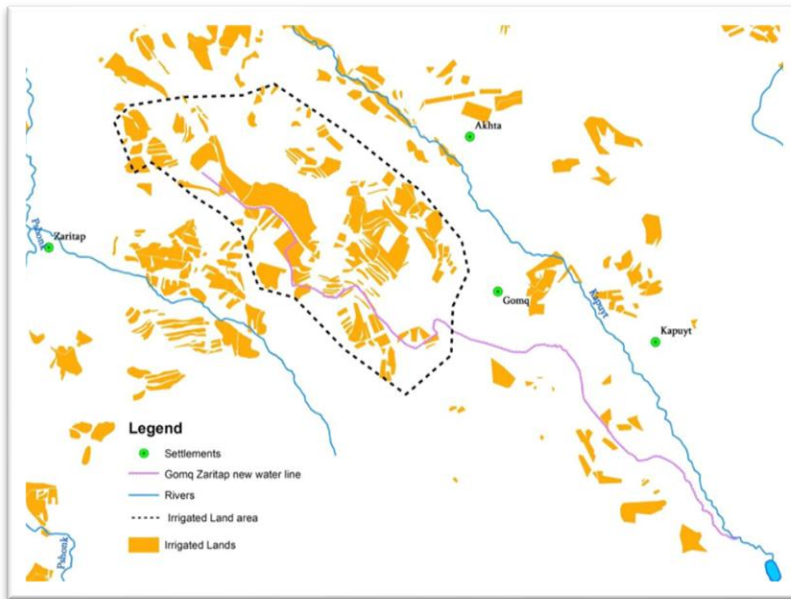
#### **Description of the water resources of the selected area**

The Kaput River runs through the selected area, where the height of Lake Kaput is 2,054 meters. The annual flow of the Kaput River from Lake Kaput is about 0.29 m<sup>3</sup>/s. During the low flow season, the Kaput River flow is about 0.10 m<sup>3</sup>/s or 100 l/s, of which the environmental flow is 0.050 m<sup>3</sup> /s or 50 l/s, and the applicable river flow is 0.5 m<sup>3</sup>/s or 50 l/s.

As a result of meetings of specialists from the Vayk Community Agriculture and Nature Protection Department, it was found that during the irrigation season a volume of 0.05 m<sup>3</sup>/s or 50 l/s would be sufficient to irrigate 280 ha of land in the villages of Kaput, Gomq and Zaritap.

With river flows in the region set to decrease by about 7-8% over the next 20-25 years as a result of climate change, the latest water-saving technologies must be used to irrigate the land.

Kaput, Gomq and Zaritap need to transfer 50 l/sec of water from the Kaput River, in the vicinity of Lake Kaput. From an elevation of about 2,020 m above the Kaput River, a 10 km water line needs to be constructed to an elevation of 1,850 m (Figure 2). This requires the construction of a suitable water intake at River Kaput, 350 mm polymer pipes 10 km long and the installation of drainage valves for every 2 or 2.5 km of water line.



**Fig. 2.** Land of Zaritap, Gomk and Kaput villages in Vayk community and location of water pipeline built for irrigation.

As a result of the construction of the above-mentioned water conduits, the inhabitants of settlements marked by high levels of poverty are ready for full land irrigation, which will improve the social situation of the inhabitants. Migration will reduce. As a result of interviews with the administrators and villagers, they expressed their willingness to plant gardens on irrigated land and use innovative irrigation technologies.

**The selected area adjoins an important Arpa biodiversity area.** At present, this area of biodiversity is being used by the population as nature use areas. As a result, the area is leading to overuse and degradation. Rational use of arable land and water resources in the selected area will contribute to reducing or preventing overuse and degradation of the important Arpa biodiversity area.

### **Gegharkunik marz**

Most of the irrigated land in Gegharkunik marz is located close around settlements. Most of the land is located on the Masrik Plain, in relatively flat areas near lake Sevan National Park. The hydro-technical facilities serving the community lands are in poor condition, which does not allow efficient use of irrigated lands. In the Gegharkuniq marz, the project took over the lands of Martuni and Vardenis communities.

**Martuni community.** During a meeting with Martuni community administration staff in May, it was revealed that a significant area of a number of settlements in the community is not irrigated, resulting in socio-economic problems for the residents of the settlements. Martuni branch of "Gegharkuniq" WUA serves the Martuni community with irrigated lands. As a result of the deplorable condition of hydro-technical facilities, only about 30% of the community lands are actually irrigated.

Within the framework of the project, 2,520 hectares of land were selected in Martuni community, of which about 750 hectares of land are irrigated by the supply system serving Matun branch of Gegharkunik WUA. From the irrigated lands selected in Martuni community, the lands of the administrative areas of Martuni, Vaghashen, Asthadzor, Zolakar and Vardenik settlements were selected as the target area considering the following parameters:

- ✓ *the substantive extent of land degradation*
- ✓ *willingness of the inhabitants of settlements to use the innovative land cultivation and irrigation technologies*
- ✓ *availability of sufficient water resources*
- ✓ *the presence and condition of hydrotechnical structures, and*
- ✓ *availability of a WUA service area.*

The irrigated land of the selected target area is about 695 ha, of which about 200 ha is actually irrigated, and the rest is not irrigated due to lack of water supply.

About 75% of the hydrotechnical structures operated by the water utility in the selected pilot site are in a dilapidated state, with half-destroyed and in some places with earthen canals.

### **Description of the water resources of the selected pilot area.**

The Martuni, Zolakar and Vardenik rivers pass through the territory.

The average annual flow of the Martuni River in the areas of Martuni and Vaghashen settlements is  $0.75 \text{ m}^3/\text{s}$ , or 23.7 million  $\text{m}^3$ , of which the environmental flow is  $0.37 \text{ m}^3/\text{s}$ , or 11.7 million  $\text{m}^3$ .

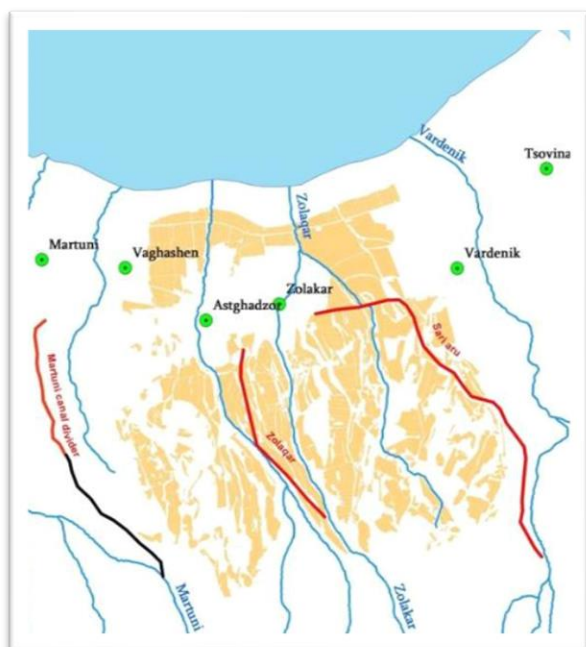
The flow of the Martuni river has high and low water periods depending on the time of year. The low-water season corresponds to the summer period when the main time for irrigation and water demand is high. During the summer low-water period, the average annual flow of the Martuni river is  $0.62 \text{ m}^3/\text{s}$  or 620 l/s ( $0.30\text{-}0.35 \text{ m}^3/\text{s}$  in the minimum year) or 300-350 l/s, of which the ecological flow is  $0.22 \text{ m}^3/\text{s}$  or 220 l/s. For the average year, the average flow rate of the river by water use will be  $0.4 \text{ m}^3/\text{s}$  or 400 l/s.

According to local water users and a WUA specialist, in the irrigation season  $0.4 \text{ m}^3/\text{s}$  of water is enough to irrigate 695 ha of land.

As a result of climate change in the Martuni community area, the river flow will not change in the next 20-25 years. Taking into account the planning of economic development of the community for the coming years, it is necessary to use modern technologies for saving water for irrigation of lands, as at the moment there is already a shortage of water. As already mentioned, the hydrotechnical structures of the selected targeted irrigated lands of Martuni and Vaghashen villages are in poor condition and in need of repair. In the selected target site, the Manas stream and Martuni Canal are the hydrotechnical facilities for Martuni river.

The Manas stream is currently being repaired with the help of WUA, and the Martuni canal needs repair, as the canal is unpaved and water losses are more than half, about 65-70%. The total length of the Martuni canal is 7.6 km, of which 2.0 km is repaired with the help of WUA "Gegharkunik", and 5.6 km are in need of repair, which are planned to be repaired under the project (Figure 3). The Martuni dividing canal covers an area of more than 500 hectares. As a result of non-cultivation, the land is 20-25% degraded. The lands are mainly community and privately owned. The 5.6-kilometre section of the Martuni canal is earthen, which can be replaced by a water pipeline made of polymer pipes of 300-350 mm in diameter.

**Fig. 3.** Selected target lands of Martuni community and location of hydrotechnical structure



Importantly, the renovation of the Martuni canal will not require the operation of the Vaghashen and Martuni pumping stations, resulting in savings of about 400,000 kWh of electricity.

The Zolakar canal, originating from the Zolakar River, is 2,300 m high, 5.3 km long, with a capacity of  $0.4 \text{ m}^3/\text{s}$  70% (Figure 3). The canal by gravity was serving 300 ha of irrigated land in the villages of Zolakar and Astghadzor. As a result of non-cultivation, the land is degraded by 20-25%. The land is predominantly community owned. The 5.3 km long canal water pipeline should be completely replaced with polymer pipe of 300-350 mm diameter, a water intake should be built, and 4 drainage valves should be installed on the relevant sections of the canal. After the repair of the Zolakar canal in the irrigation season 60-65 l/sec of water will be transported through the 350-400 mm diameter polymer pipe and 150-200 ha of land will be irrigated.

After interviews with the head of the village administration and several residents, it became clear that they were willing to grow gardens on irrigated land and use innovative irrigation technology.

A meeting with the mayor of Martuni in May resulted in the importance attached to the reconstruction of the Sari Aru canal, as the canal is of vital importance to the community's irrigated land.



The Sari Aru canal was built in the 1950s, is earthen, has not been used since the 1990s and is almost completely backfilled with soil. The construction of the mountain stream canal will provide irrigation water to about 2,000 hectares of arable land in the Vardenik, Zolakar and Astkhadzor administrative districts of the community. The length of the former canal on the mountain stream was about 10.5 km, which needs complete reconstruction (Figure 3).

#### **Description of the water resources of the selected area.**

The Vardenik River flows through this area. The average annual flow of the Vardenik River to Vagashen, Zolakar and Vardenik settlements is 1.22 m<sup>3</sup>/s, or 38.5 million. m<sup>3</sup>, of which the environmental flow is 0.28 m<sup>3</sup>/s, or 8.83 million m<sup>3</sup>. The flow of the Vardenik River also has high and low water periods depending on the time of year. The low-water season corresponds to the summer irrigation season when water demand is high.

During the low flow season in summer, the average annual flow of the Vardenik River is 0.94 m<sup>3</sup>/s or 940 l/s (0.45 m<sup>3</sup>/s or 450 l/s in the minimum year), of which the ecological flow is 0.20 m<sup>3</sup>/s or 200 l/s. The river flow, taking into account water use, will be 0.7 m<sup>3</sup>/s or 700 l/s in an average year and 0.25 m<sup>3</sup>/s or 250 l/s in a minimum year.

The project is to build a 10.5 km long water pipeline. The canal will start at an elevation of 2,350 m of the Vardenik River and the last part will be at an elevation of 2,040m. For the construction of the canal, half-pipes of type LR-80 or polymer pipes of 300-350 mm diameter are suitable.

The construction of the mountain stream canal will provide gravity irrigation water to the administrative areas of the above-mentioned settlements with an area of up to 2,000 hectares.

In the Community Development 2022-2026 plan the development of agriculture has a special focus, in particular, the construction, maintenance and operation of irrigation systems. The provision of irrigation water to settlements is an urgent need. The implementation of the programme will have a tangible impact on the improvement of agricultural infrastructure, as well as on the implementation of socio-economic projects. As a result of the programme implementation in the community, the area of cultivated plants and crop yields will increase, as well as the income of the population will increase, and water losses and costs will be reduced.

The direct beneficiaries will be the population of the settlements mentioned in the project, about 18,000 people. After implementation of the programme, the socio-economic situation of people will improve, water losses will be reduced, productivity and irrigated land will increase, new jobs will be created, migration will reduce, the level of satisfaction and quality of life of the population will increase.

The project will prevent degradation of irrigated land in the community and improve the physical and chemical composition of land. The selected areas are close to or located in specially protected natural areas and biodiversity areas.

**The selected area is adjacent to the Sevan National Park and the important bird areas of Lake Sevan.** At present, these biodiversity areas are being intensively used by the population as nature use areas. As a result, these areas are leading to overuse and degradation.

Rational use of arable land and water resources in the selected area will contribute to reducing and preventing overuse and degradation of important areas of Sevan National Park's biodiversity.

**Vardenis community.** During the meeting with community administration staff in Vardenis community in May, it was revealed that the hydrotechnical structures of canals and underground wells serving the community lands are in poor condition, as a result of which only about 15% of the community lands are actually irrigated. In the framework of the project, 7,500 ha of land was selected in Vardenis community, of which about 900-1,000 ha are actually irrigated by the Vardenis branch of WUA "Gegharkunik".

Most of the irrigated land of Vardenis community is spread on the Masrik Plain and is relatively compact. The Vardenis Community irrigated lands are maintained by the "Gegharkunik" WUA branch in Vardenis. About 80% of the community lands are irrigated by surface water – waters of the Masrik river, and about 20% are irrigated from the underground basin of the Masrik Plain.

From the irrigated land selected in the Vardenis community, the lands of Vardenis, Metz Masrik, Pokr Masrik, Norakert and Geghamasar settlements were selected as the target area, taking into account the following parameters:



- ✓ the substantive extent of land degradation.
- ✓ willingness of the inhabitants of settlements to use the innovative land cultivation and irrigation technologies
- ✓ sufficient water resources
- ✓ availability and condition of hydro-technical structures
- ✓ availability of a WUA service area.

**Fig. 4:** Selected target land of Vardenis community and location of hydro-technical structures



The Masrik canal is maintained by a water management company in a selected target area, which originates from springs near the settlement of Akunq, and from the 10th km is also fed by the waters of the Masrik River. It was commissioned in 1937. The length of the concrete canal is 24.4 km and the flow capacity is 2 m<sup>3</sup>/sec. In its current state, the canal is deteriorated and about 75% of it is half destroyed (Figure 4). The project will work with farmers, entrepreneurs and local authorities in the selected areas.

#### **Description of water resources of the selected area**

The Masrik River passes through the selected area. The average annual flow of the Masrik to the Masrik Canal intake is 3.10 m<sup>3</sup>/s, or 99.4 million. m<sup>3</sup>, of which the environmental flow is 0.65 m<sup>3</sup>/s, or 20.5 million m<sup>3</sup>.

The flow of the Masrik river does not fluctuate much depending on the time of year, as the groundwater supply is about 80%. During the summer irrigation period the average annual flow of the Masrik river is min 2.5m<sup>3</sup>/s or 78.8 million m<sup>3</sup>, of which the ecological flow is 20.5m<sup>3</sup>/s. Average annual flow of the river for water use will be 1.85m<sup>3</sup>/s or 78.8 million m<sup>3</sup>.

According to local water users and a WUA specialist, in the irrigation season 1.85 m<sup>3</sup>/s from water is enough to irrigate about 2,200 ha of land.

As a result of climate change in the area of Vardenis community there will be no change in river flow in the next 20-25 years. But taking into account the community's farm planning in the coming years it is necessary to use the latest technologies that save water for irrigation, as there is already a shortage of water.

Hydrotechnical constructions of the selected pilot irrigated lands are in need of repair. The Masrik canal needs repair mainly from Masrik river to Geghamasar settlement. Within the framework of the programme it is planned to repair 5 km section of the mentioned section starting from the Masrik river.

As a result of the lack of irrigation and cultivation in the Vardenis community, about 30% of the land is on the verge of degradation.

The 5 km long concrete section of the Masrik canal to be repaired needs to be concreted or is planned to be repaired with a geomembrane.

The deep well pumps of the Masrik underground basin are also in need of repair from the hydraulic structures in the irrigated land service area allocated within the Vardenis community.

There are several pumping stations on the Masrik River and the Gilli Tzovak pumping station on the Masrik River had to be repaired and operated until 1990, when about 800 ha of land was served by various irrigation methods. Only the pumping station building now survives.

As a result of the proposed programme, the irrigated land of Tsovak, Vaneevan, Torfavan, Norakert and Vardenis communities will be increased by 800 ha.

**The selected area is adjacent to the Sevan National Park and Gilli Biodiversity (Ramsar) area.** At present, these biodiversity areas are being used by the population as nature use areas. As a result, these areas are leading to overuse and degradation.

Rational use of arable land and water resources in the selected area will help to reduce and prevent overuse and degradation of the Sevan National Park and Gilli biodiversity areas.

**Vardenis community Tsovak settlement.** Another target area in Vardenis community will be Tsovak administrative district/settlement. In Tsovak 2,319 people live. Irrigated land is about 645 ha, of which about 70% is not irrigated. Due to the inaccessibility of water resources, the lands are not irrigated due to the dilapidation of hydro-technical structures. As a result, most of the inhabitants of Tsovak are engaged in fishing and cattle breeding. During the consultations with fishermen from this village many of them expressed willingness to stop or reduce the fishing practice, if appropriate conditions may be developed for land cultivation and husbandry. Many of them have these practices on a small scale but are ready to expand irrigation and appropriate pasture management will be installed.

The main water resource serving the lands of Tsovak is the Karchaghbyur river. The irrigated lands from the Karchaghbyur River to Tsovak serve the Tsovak 1 and Tsovak 2 canals. These canals are dilapidated; they are operated by 30%. Canals need to be repaired.



The length of Tsovak #1 Canal is 6,450 m and Tsovak #2 Canal is 3,600 m.

**Fig. 5.** Selected target land of Tsovak village Vardenis community location of hydrotechnical structures

**Description of water resources of the selected area.**

The Karchaghbyur River passes through the selected area. The average annual flow of the Karchaghbyur to the Tsovak 1 Canal intake is 1.10 m<sup>3</sup>/s, or 34.7 million m<sup>3</sup>, of which the environmental flow is 0.45 m<sup>3</sup>/s, or 14.2 million m<sup>3</sup>.

The average annual flow of the Karchaghbyur to the Tsovak 2 Canal intake is 0.61 m<sup>3</sup>/s, or 19.2 million m<sup>3</sup>, of which the environmental flow is 0.23 m<sup>3</sup>/s, or 7.25 million m<sup>3</sup>.

During the summer irrigation period the average annual flow of the Karchaghbyur river is min 0.65m<sup>3</sup>/s or 20.5 million m<sup>3</sup>, of which the ecological flow is 7.25m<sup>3</sup>/s. Average annual flow of the river for water use will be 0.38m<sup>3</sup>/s or 12.0 million m<sup>3</sup>.

According to local water users and a WUA specialist, in the irrigation season from Tsovak 1 Canal and Tsovak 2 Canal 0.3 m<sup>3</sup>/s water is enough to irrigate about 500 ha of land.

## SUGGESTED ACTIONS

Planned actions include: water management, repair or improvement of hydro-technical structures (e.g. pumps, canals) and application of international best practices, innovative water-saving irrigation technologies and crop sustainability practices. These measures will prevent land degradation, reduce pressure on natural resources and biodiversity, and improve the socio-economic situation of the population.

### 3.1. Necessary works to repair the hydrotechnical installations and to improve irrigated land of the community of Yehegis, Vayots Dzor marz

#### Vayots Dzor marz, Yeghegis community (Taratumb settlement/village)

In Taratumb settlement/village of Yeghegis community the following necessary works for the repair of hydrotechnical and improvement of irrigated land are envisaged:

- ✓ Reconstruction of a pumping station building with an area of 40 m<sup>2</sup> (length 10 m, width 4 m), at an absolute height of 1,594 m,
- ✓ Cover the floor with concrete,
- ✓ Plastering interior walls
- ✓ Installation of two windows
- ✓ Installing the front door
- ✓ Installation of one GHS 150/50 l/s pump
- ✓ The length of the water pipeline from the pumping station to the divider is 1,150 meters. Installing a PE 100 polyethylene pressure pipe of 250 mm diameter (the initial section should be PN16) 50 l/s water will be pumped from 1,594 m to 1,680 m.
- ✓ The second section from the divider continues by gravity to the last site with a 200mm diameter pipe 1,300m long (Table 1).
- ✓ Pool with an area of 7,200 m<sup>3</sup> (length 120 m, width 20 m, depth 3 m). The bottom and sides of the pool are in places filled with concrete and covered with plastic sheeting (Table 1).

**Table 1. Prices of goods (in AMD) to be repaired**

Item	Unit of measure	Area / length	Cost per unit AMD	Total, AMD
Polymer pipe	250 mm	1,150 m	1 Unit = 15,000	17,250.000
Covering the pool with plastic sheeting	m <sup>2</sup>	3,660 m <sup>2</sup>	3000 (includes geotextile, geomembrane and works)	10,980.000
Polymer pipe	200 mm	1,300 m	1 Unit = 8 000	10,400.000
GHS Pump 180 (150) /50 Repair of roof, floor and walls of pump station	50 hp Conditional	1 item		7,000.000 2,500.000
Other costs				2,700.000
<b>Total</b>				<b>40,000,000 drams, equivalent to about \$ 90,000</b>

### 3.2. Necessary works to repair hydrotechnical structures and improve irrigated lands of Vayk community in Vayots Dzor marz

#### Vayk community (Gomk and Zarithap settlements/villages)

Necessary repair works of hydraulic structures and improvement of irrigated lands in Gomk and Zarithap administrative areas:

- 50 l/s gravity water transfer from the Kaput River
- The water intake at the Kaput River from elevation 2020 meters to elevation 1,850 meters. The water line is 10 km long.
- Construction of a water intake on the banks of the Kaput River,
- 300 mm polyethylene pipe 10 km long,
- Installation of a valve or turbine on each 2.5-km water main that can supply the community with electricity (Table 2).

**Table 2. Prices of goods (in AMD) to be repaired**

<i>Item</i>	<i>Unit of measure</i>	<i>Area / length</i>	<i>Cost per unit AMD</i>	<i>Total, dram</i>
Polymer pipe	300 mm	10 000 m	1 Unit = 26 000	260,000,000
Installing plastic pipes	Conditional			40,000,000
Other costs				4,000,000
<b>Total</b>	<b>304,000,000 drams, equivalent to about \$ 640,000</b>			

**3.3. Necessary works to repair hydrotechnical structures and improve irrigated lands of Martuni community of Gegharkunik marz**

**Martuni community (Martuni separator Canal) of Gegharkunik marz**

- ✓ Construction of a 5.6 km section of the Martuni separation canal
- ✓ up to 400 l/s of gravity water pumping
- ✓ Installation of 500-550 mm polymer pipe
- ✓ Installation of valves on each 2.5 km water main (Table 3)

**Table 3. Prices of goods (in AMD) to be repaired**

<i>Item</i>	<i>Unit of measure</i>	<i>Area / length</i>	<i>Cost per unit AMD</i>	<i>Total, dram</i>
Polymer pipe	500 mm	5,600 m	1 Unit = 32 000	179,200,000
Installing plastic pipes	Conditional	-	-	12,000,000
Other costs				3,000,000
<b>Total</b>	<b>194,200,000 drams, equivalent to about \$408,500</b>			

**Martuni community of Gegharkunik marz (Sari aru canal)**

- 10.5 km of new water line of the Sari Aru canal, from 2,350 meters to 2,040 meters,
- Installation of valves every 2.5 km of water pipe
- Installation of a 300 mm diameter polymer pipe. (Table 4).

**Table 4: Prices of goods to be repaired, AMD**

<i>Item</i>	<i>Unit of measure</i>	<i>Area / length</i>	<i>Cost per unit AMD</i>	<i>Total, dram</i>
Polymer pipe	300 mm	10 500 m	1 line = 26 000	260,000,000
Installing plastic pipes	Conditional	-	-	40,000,000
Other costs				3,000,000
<b>Total</b>	<b>303,000,000 drams, equivalent to about \$638,000</b>			

**3.4. Necessary works to repair hydrotechnical structures and improve irrigated lands of Vardenis community of Gegharkunik marz**

**Vardenis community of Gegharkunik marz.** Necessary works to repair hydraulic structures and improve the irrigated land of the community of Vardenis:

- ✓ Installation of geomembrane and barbed-wire protection for animals at the 5 km section of the Masrik water pipeline,
- ✓ Reconstruction of the inactive Gilli Tzovak pumping station on the Masrik river.
- ✓ Installation of a D-360/50 centrifugal pump unit in a pumping station
- ✓ Installation of 2,500 m of polymer pipe with a diameter of 300 mm (Table 5)

- ✓ Introducing good practices for crop resistance to degradation and salinity of degraded land up to 100 ha in the community of Vardenis.
- ✓ Planting alfalfa on saline and degraded irrigated soils, which will enrich the nitrogen content of the soil. From next year, alfalfa will be used in livestock farming as fodder.
- ✓ Rotation and selection of crops requiring less water: testing / selection of alfalfa.

**Table 5: Prices of goods (in AMD) to be repaired**

<i>Item</i>	<i>Unit of measure</i>	<i>Area / length</i>	<i>Cost per unit AMD</i>	<i>Total cost, AMD</i>
<i>Installation of geomembrane and protective barbed wire for livestock at the Masrik pond</i>	-	5000 m	30 000	150,000,000
<i>Installation work</i>	-	-	-	50,000,000
<i>polymer tube</i>	300 mm	2500 m	1 unit = 28000	70,000,000
<i>Pump D 360/50</i>	100 hp	1 item	1 500 000	3,500,000
<i>Other costs</i>				4,000,000
<b>Total</b>	<b>273,500,000 drams, equivalent to about \$590,000</b>			

### **3.5. Necessary works to repair hydrotechnical structures and improve irrigated lands of Shoghakat community of Gegharkunik marz**

The project will support the Shoghakat community of Gegharkunik marz.

Smart irrigation system construction in Shoghakat **Gegharkunik** is implemented by UNDP “Women and Youth for Innovative Local Development” project. The scope of works is under tender, and the design of the irrigation system will be ready before this project starts.

This project will support the installation of innovative irrigation systems on arable lands (drip irrigation, sprinkler Irrigation systems, mobile automatic sprinkler irrigation roll system). The project will contribute with some works/items with an estimated investment of \$ 25,000.

### **3.6. Necessary works to repair hydrotechnical structures and improve irrigated lands of Tsovak settlement/village Vardenis community of Gegharkunik marz**

The project will support the Vardenis community Tsovak settlement/village.

The project will participate in the assessment and restoration of the condition Tsovak #1 Canal and Tsovak #2 canals in Tsovak administrative area.

The canal rehabilitation project will require a financial investment of up to \$ 150,000.

### **Summary of suggested actions**

Demonstrate best practices in irrigation technology measures. These project-supported activities will be implemented in selected communities based on agreed-upon activities. The implementation of measures in the selected communities will contribute to the improvement of water basin planning and management and further development to improve the condition of the irrigation system in the selected communities.

Table 6 below shows the implementation of the measures in the target selected community areas, the total cost, the estimated cost provided by the GEF, the co-financers, the amount of possible subsidy provided by the state and the number of people benefiting from the implementation of the measures.

The measures include only the cost of materials and works.

Existing co-financing includes the amount of participation of Communities and Water Companies.

**Table 6: Costs (in USD) of the hydrological work proposed under the GEF project in selected community areas**

Description of the hydrological work proposed under the GEF project	Total cost	Village/Marz	GEF funds	Expected Co-financing (USD)	Funds to be mobilized by writing proposals (under gov programmes)	Number of beneficiaries
Reconstruction of a pumping station building with an area of 40 m <sup>2</sup> . Conducting water supply with a polymer pipe 200 mm long 1300 m. Pool repair. Pool volume about 7,200 m <sup>3</sup> Concrete and polymer coating on degraded areas of the pool. As a result of the reconstruction, 52 hectares of land will be irrigated	90,000	Vayots Dzor marz, Yeghegis community (Taratumb settlement/village)	12,000	7,500- community 7,500- WUA Yeghegis	63,000 - Subvention	400
Construction of a 10-km conduit from the Kapuyt River with polymer pipes with a diameter of 350 mm. Every 2.5 km, install water valves on the water conduit. As a result of the reconstruction, 300 hectares of land will be irrigated.	640,000	Vayots Dzor marz, Vayk community (Gomk and Zaritap settlements/villages)	142,000	50,000- community	448,000 - Subvention	1,400
Laying of a water conduit with a polymer pipe 500-550 mm in the 5.6 km section of the Martuni dividing canal. Every 2.5 km, install water valves on the water conduit. As a result of the reconstruction, 600 hectares of land will be irrigated	408,500	Gegharkunik marz, Martuni community (Martuni, Vaghashen, Asthadzor settlements/villages)	52,550	30,000- community 40,000- WUA Gegharkuniq	285,950 - Subvention	20,500
Rehabilitation of 10.5 km of the Martuni Sary Aru Canal. Conducting water supply with a polymer pipe 300 mm. As a result of the reconstruction, 2000 hectares of land will be irrigated	638,000	Gegharkunik marz, Martuni community (Vagashen, Asthadzor Zolakar and Vardenik settlements/villages)	51,400	70,000- community 70,000- WUA Gegharkuniq	413,000 - Subvention	16,200
Installation of a geomembrane on the Masrik canal and laying of protective barbed wire for animals. Reconstruction of the Gilli-Tsovak pumping station. Installation of a polymer pipe 300 mm long 2500 m and a centrifugal pump unit D - 360/50 at the pump station. As a result of the reconstruction, 2200 hectares of land will be irrigated.	590,000	Gegharkunik marz, Vardenis community (Vardenis, Metz Masrik, Pokr Masrik, Norakert and Geghamasar settlements/villages)	57,000	40,000- community 80,000- WUA Gegharkuniq	413,000 - Subvention	18,000
Tsovak # 1 and Tsovak # 2 canals condition assessment ev recovery. As a result of the reconstruction, 500 hectares of land will be irrigated.	150,000	Gegharkunik marz. Vardenis community Tsovak settlement/ village)	35,000	5,000- community 5,000- WUA Gegharkunik	105,000 - Subvention	2,300
<b>Total:</b>	<b>2,516,500</b>	<b>-</b>	<b>349,950</b>	<b>405,000</b>	<b>1,761,550</b>	<b>58,800</b>

**The cost (USD) of hydrological work proposed under the GEF project includes:**

**Total cost: USD 2,516,500**

**GEF funds: USD 349,950**

**Expected Co-financing: USD 405,000**

**Subvention Funds (Provided by the Government of the Republic of Armenia): USD 1,761,550**

**Number of beneficiaries (number of people benefiting from the works): 58,800**

**An estimated total area to be irrigated: 5,652 hectar**

## RECOMMENDED TRAINING COURSES

The project provides training courses on efficient use of irrigated land and water resources, involving communities and representatives of the WUAs, farms, farmers and other stakeholders.

Training courses on efficient use of irrigated land and water resources will be conducted on the following topics

- Water efficiency and sustainable management / Using water meters for efficient water use
- Maintaining the ecological status of water resources /environmental flows, assessment of water use
- Assessment, prevention, reduction and restoration of land degradation
- Irrigated land rehabilitation technologies, methods to improve crop yields
- Shift to using Eco-Friendly Fertilizers instead of agri-chemical fertilizers, to prevent water and soil pollution
- Targeted use and sustainable management of irrigated land (crop rotation on irrigated agricultural land, efficient irrigation against climate change)
- Introduction of innovative land irrigation technologies, such as drip and irrigation
- The project will organize field study visits to irrigated demonstration plots
- Write proposals for financing the use of new land irrigation technologies, supporting farmers' applications for long-term land leases and loans (Republic of Armenia Horticulture Development Programme 2020-2023. "On Approval of the Co-financing Programme for Introduction of Modern Irrigation Systems" to RA Government Decision 212-L, March 7, 2019).

Training activities courses on the effective use of irrigated lands and water resources will be organized by the project professional team.

## INTEGRATED WATER RESOURCES MANAGEMENT PLANS THAT ARE CLIMATE-SENSITIVE AND COMPATIBLE WITH LDN IN SELECTED COMMUNITIES

Introduce integrated climate-sensitive and LDN-compliant water management plans in selected communities to improve land conditions through innovative irrigation technologies and climate-resilient crops in line with LDN principles. Strengthen the capacity of the WUAs to demonstrate sustainable agricultural and agro-forestry measures.

## CO-FINANCING

It is expected that the project will seek co-financing contribution to implement the envisaged measures. There are several sources for co-financing, namely funds from State government subvention, community budget, and from WUAs. Community members can contribute with in-kind coin the form of, labor or other technical means, also providing materials.

Major source for rehabilitation of irrigation hydrotechnical structures in the water supply network for bringing water close to irrigated land and for installation of innovative irrigation systems is the Subvention scheme funded by the state budget of the Government of the Republic of Armenia that may finance up to 70% of the project cost.

Subvention programmes are regulated by the Government of Armenia Decree N-1708 issued 16 November 2006 "On approval of the procedure for providing subventions from the state budget of the Republic of Armenia" (<https://www.arlis.am/DocumentView.aspx?DocID=143635>), among other programmes, the "Construction / repair of irrigation system" is included to be supported by subvention funding. For all suggested actions under this project communities are eligible to apply for subvention funding.

The most recent amendment of this decree as of 13 January 2022, is the Decree N 37-N of the Government of the Republic of Armenia "On making amendments and additions to the decision N 1708 of November 16, 2006" where among others the following new programme line is added "Improvement of roads to distant pastures" and up to 60% of the applied project costs can be covered from subvention funds.



The selected communities of Gegharkuniq and Vayots Dzor are ready to participate in the measures proposed by the programme with up to 10% co-financing.

Private sector representatives in the selected communities (large land user farmers) also expressed their willingness to participate in the implementation of the programme activities with co-financing of up to 10%.

WUAs will participate with up to 10% co-financing to implement planned activities in the WUAs service areas.

To implement the measures, the program will seek to control and implement the co-financing percentages offered by communities and WUAs.

## **STAKEHOLDERS**

The stakeholder analysis identified the main stakeholders in the project based on their respective interests and power positions: related to community capacity, governance structure, academic focus, community mandates or national policy guidelines. According to the UNDP Guidelines, UNDP Draft Guidelines on Stakeholder Engagement in UNDP Social and Environmental Standards (SES), project stakeholders are individuals, groups or institutions that have an interest in the project or can positively influence project outcomes. Stakeholders may be directly or indirectly affected by the project.

The range of potential stakeholders is diverse and can include stakeholders of the project target areas, local affected communities or individuals, national and local governments, non-governmental organizations (NGOs) (both local and sometimes international), policy makers, academia, private sector companies, other special interest groups, UN agencies and other donors.

The project will work closely with all stakeholders to assist the government, natural resource management authorities and institutions in fulfilling their responsibilities, as well as with resource user rights holders in asserting their rights.

These project-supported activities will be implemented in selected locations in the target areas. The project will work with state and community governments, water utility providers, the private sector and other stakeholders. The selected communities will actively involve employees of public utilities and water companies, as well as individual entrepreneurs, the relevant bodies of the RA Ministry of Territorial Administration and Infrastructure, and the Ministry of Environment.

Staff from the Ministry of Territorial Administration and Infrastructure, the Ministry of Environment and the State Water Management Committee will be actively involved in all phases of the project, with the expectation that the project will support integrated water resources management plans and that all proposals will be officially approved and implemented at community level.

Stakeholders of the project implementation in Taratumb administrative territory of Vayots Dzor marz will be Vayots Dzor marz administration, local government of Yeghegis community, Yeghegnadzor WUA. As well as representatives of Taratumb settlement, private sector NGOs and other stakeholders. The stakeholders for the project implementation in the Vayk administrative area of the Vayots Dzor marz will be the representatives of the Vayk Administration, Vayk Community (in particular, the specialists of the Department of Agriculture and Nature Protection of the community), Zarithap and Gomk administrative areas, the private sector, NGOs and other interested parties.

For project implementation in selected communities of Gegharkuniq marz the stakeholders will be: representatives of Gegharkuniq marz regional government, Martuni and Vardenis communities, Gegharkuniq WUA, private sector, NGOs and other stakeholders.

## **RISK REDUCTION**

The proposed measures will use the currently existing infrastructure/network of irrigation channels and the project will adhere to the SESP requirements for the on-farm repairs that are supported by GEF funds, while it will ensure consistency with SESP requirements for the works financed from State programmes. The innovative irrigation elements will be adequately designed, and the installation conditions studied by the project.



Project experts/specialists will supervise the selection and procurement of technologies at the project demonstration sites. This will reduce the potential risks of inappropriate quality products and works in repairing or improving and using the irrigation technology.

Monitoring/safety experts/companies will conduct environmental and social audits and assessments in accordance with SES requirements for all work required by Outcome 3.1, in accordance with applicable domestic policies and legislation and UNDP SES requirements.

The local field support staff will work with monitoring safety specialists/companies to ensure that the risk mitigation measures are compliant with the UNDP Corporate Risk Management Policy and national legislation and are fully implemented and monitored. Some of the proposed site risk mitigation measures will be included in contracts with third parties, e.g:

- Ensuring that the equipment is correctly installed by the manufacturers on site
- Ensure that people use safe working techniques, especially when dealing with electrical contacts
- Safe bypass roads between settlements or farms along canal dams
- The operational road will be organized with the least disturbance, as close as possible to the preservation of the natural landscape. Project coordinators and specialist assessors will work with contractors to ensure compliance with national labour standards (Labour Code), payment of adequate remuneration for the assigned task and avoidance of child labour.

## Annex 21: Socio-economic, livelihoods and tourism

(Please see separate report)

## Annex 22: Knowledge management plan

The project knowledge management approach is geared towards addressing capacity gaps and barriers and includes a range of practices to identify, capture, store, create, update, represent and distribute knowledge for use, awareness, and learning. The proposed Knowledge Management Plan includes **three elements** aligned with the GEF requirements to foster learning and sharing from relevant projects and programmes, initiatives, and evaluations, that will contribute to the project’s overall impact and sustainability.

1. Learning from and building on the existing lessons and best practices,
2. Assessing and documenting results,
3. Knowledge sharing and communication.

### 1. Learning from existing lessons and best practices

Related Thematic Projects Implemented or Ongoing in Armenia		
Main Objective	Specific Initiatives	Potential synergies with the GEF project
<p><b>1. Environmental protection of Lake Sevan</b>  <a href="#">Prodoc EU4SEVAN UNDP Final Signed.pdf</a>            EU4Sevan, implemented by GIZ and UNDP (Component 5), supported by EU financing</p>		
<p><b>EU Funding:</b> € 5,769,199 million (UNDP component €1,000,664)  <b>Duration:</b> September 2020 - August 2024</p>		
<p>EU4Sevan project aims to further enhance and sustainably improve the environmental protection of Lake Sevan, apply ecosystem-based approach as a basis for planning and management of productive landscape in the Lake Sevan basin and sectoral development in an integrated manner to help minimize further deterioration of ecosystems and enhance sustainable livelihood opportunities for communities focusing on further improvement of the governance of Lake Sevan ecosystem.</p>	<p>In contrast to sectoral planning, landscape approach provides a framework for balancing the different daily needs with long-term conservation objectives</p> <ul style="list-style-type: none"> <li>- Strengthen policy environment, develop Management Plan of Lake Sevan National Park</li> <li>- Create capacity of the local stakeholders for implementing ecosystem-friendly and water-protecting land-use and cultivation practices</li> <li>- Enhance the capacities of public and private stakeholders to ensure improved wastewater treatment through nature-based solutions</li> <li>- Stricter application of environmental regulation due to improved zoning, design of forest rehabilitation programme</li> <li>- Analysis of risks associated with consequences/impact of raising the level of water in Lake Sevan</li> </ul>	<p>Harmonization with:</p> <ul style="list-style-type: none"> <li>✓ Design of forest rehabilitation programme around Lake Sevan.</li> <li>✓ Development of Sevan National Park Management Plan</li> <li>✓ Sustainable land management (SLM) measures in select sites; coordination of the selection of filed sites and exchange of good practices.</li> </ul> <p>Learn from the:</p> <ul style="list-style-type: none"> <li>- Ecosystem-friendly and sustainable water/ land-use and cultivation practices –to explore what good practices can be replicated during the GEF project implementation.</li> <li>- Waste-water treatment installation effectiveness and affordability for different local development initiatives in the GEF project areas.</li> </ul>

	<ul style="list-style-type: none"> <li>- Raise awareness about the significance of the protection of Lake Sevan among the basin communities, the private sector, and other stakeholders</li> <li>- Implement fast-track activities to offset the economic and social consequences of COVID-19, including the planting of around 600,000 willow cuttings and fruit trees in the riparian zones of a number of rivers Support local farmers in cultivating new varieties of cabbage to increase the income of local farmers and to halve their water consumption</li> </ul>	
<p><b>2. Implementation of Armenia’s LDN commitments through sustainable land management and restoration of degraded landscapes</b>  <a href="#">FSPCEOEndorsementdocumentArmenia LDN FAO GEF13 JUL 2021 2.docx (live.com)</a>          GEF Agency – FAO, Executed by the Ministry of Environment</p>		
<p><b>GEF funding:</b> \$2,183,105  <b>Duration:</b> October 2021 – October 2024</p>		
<p>The project aims at comprehensive land use planning addressing interconnectedness and trade-offs across multiple ecosystems following a landscape approach in line with GEF’s vision to foster sustainable integrated landscapes to achieve LDN.</p> <p>The project will cover two marzes: Lori and Syunik.</p>	<p>Through implementation and scaling up of SLM the project is expected to contribute to:</p> <ol style="list-style-type: none"> <li>a) Development of cross-sectoral policies/legal framework supporting LDN principles</li> <li>b) Strengthening intersectoral (horizontal and vertical) coordination</li> <li>c) Assessment of the current status, trends, drivers, including impacts of climate change and migration, and costs of land degradation</li> <li>d) LDN indicators (land cover, land productivity, and soil organic carbon) in target Lori and Syunik regions assessed and mapped</li> <li>e) LDN training material developed for and capacity building on LDN for key decision-makers and practitioners</li> <li>f) Integrated land-management plans developed using participatory approaches and integrated with existing Community land use planning processes in target regions</li> <li>g) “LDN learning landscapes’ established with SLM best practices and integrated restoration of landscapes that provide carbon benefits</li> <li>h) Training programs on value-chains management (e.g. marketing, processing, certification) for local communities</li> <li>i) Monitoring system for LDN indicators (land cover, soil productivity and soil organic carbon) in place</li> </ol>	<p>Harmonization with:</p> <ul style="list-style-type: none"> <li>✓ Proposed methodologies for data collection for LDN baseline assessments and progress monitoring</li> <li>✓ Organization of joint trainings on LDN and biodiversity friendly value chains – including:             <ul style="list-style-type: none"> <li>- capacity building for local authorities and local natural resources users, and exchange good practices in setting LDN targets at regional levels and measures and incentives for LDN implementation</li> <li>- Strengthening the capacity and mandate of the UNCCD Committee to implement LDN and monitor LDN implementation</li> </ul> </li> <li>✓ Mainstreaming LDN requirements into the national enabling policy framework</li> <li>✓ Supporting behavioral and institutional change that leads to adoption and implementation of LDN principles</li> <li>✓ Balancing of gains and losses of productive land to achieve LDN</li> </ul>

### 3. Forest Resilience of Armenia, Enhancing Adaptation and Rural Green Growth via Mitigation

<https://www.greencimate.fund/document/forest-resilience-armenia-enhancing-adaptation-and-rural-green-growth-mitigation-0>

<https://www.greencimate.fund/sites/default/files/document/sap014-fao-armenia.pdf>

[FAO and Green Climate Fund partner for climate change adaptation and green growth in Armenia](#)

Executing Entity: Republic of Armenia, acting through the Ministry of Environment / FAO

**GCF funding:** \$10,000,000

**Duration:** 04 Nov 2021 - 04 Nov 2029

The goal of the project is aimed at strengthening forests' enormous capacity to mitigate against climate change, primarily through reducing forest degradation, planting new forests, and managing existing ones focusing on the forest-energy nexus, the project will target adaptation and mitigation measures in two of the country's administrative areas most vulnerable to climate change 105 rural communities in 8 municipalities of Lori Marz and 102 rural communities in 7 municipalities of Syunik Marz

Through sustainable and climate-adaptive forest management, and ensuring technology transfer to rural communities the project aims at:

- a) Increasing the role of communities governing and managing natural resources through forest concessions and improved fuelwood management, timber production and non-timber forest products. This is a relatively new approach in Armenia and has the potential to act as a model for the entire country
- b) Supporting in the use of energy-efficient appliances in the private sector and rural households to decrease pressure on natural ecosystems at the same time increase energy security in the rural areas vulnerable to the climate change
- c) Increasing the extent and resilience of forest cover against the projected climatic changes by introducing climate adaptive forestry technique such as production of climate adaptive seedlings (locally available species)
- d) Estimating the GHG emissions using the with EX-ACT tool and monitored with independent households' surveys aimed at assessing fuelwood management/consumption in project areas

Learn from/build on:

- ✓ Forest concession model to be used to increase the role of communities for governing and managing natural resources – if it can be replicated also for sustainable management of other natural resources.
- ✓ Exchange of good practices in setting up nurseries using native climate resilient seedlings

### 4. SEVAMOD2 - Building up science-based management instruments for Lake Sevan, Armenia

<https://www.ufz.de/index.php?en=44302>

**Funding Institution:** Federal Ministry for Education and Research of Germany (Project ID O1DK20038; 91.5% of planned costs), Ministry of Environment of the Republic of Armenia (8.5% of planned costs)

**Duration:** April 2020 – March 2023

Building up science-based management instruments for Lake Sevan

Conduct monthly sampling of Lake Sevan at the deepest sites of Small Sevan and Big Sevan at different depths to advise on:

- a) Nutrient budget for Lake Sevan and nutrient management concept
  - b) Coupled physical-ecological 1D eutrophication model for Lake Sevan (nutrients, plankton, oxygen)
  - c) Use of satellite-based remote sensing for estimation of water quality of Lake Sevan
  - d) Evaluation of alternative management scenarios and identification of major water quality threats for Lake Sevan including the preparation of a policy brief
- Capacity Building in Armenia for use of satellite remote sensing and lake modelling

Collaborate with the SEVAMOD 2 project to identify the rational for including the science-based management tools for monitoring of Lake Sevan in building the capacity of the Sevan National Park.

**5. Strengthened protection and sustainable use of biodiversity in Armenia in line with the European standards**

<https://www.biodiversity.am/en/news/72-roundtable-on-legislation-and-institutional-changes-in-nature-conservation>

[https://cms.bmeia.gv.at/fileadmin/user\\_upload/Zentrale/Europa/EU-Twinning/April-](https://cms.bmeia.gv.at/fileadmin/user_upload/Zentrale/Europa/EU-Twinning/April-)

[Juni 20/Strengthened protection and sustainable use of biodiversity in Armenia in line with the European standards.pdf](#)

AM 19 ENI EN 01 19, The Twinning project is Implemented by Czech-Finnish consortium and coordinated by the Ministry of Environment of the RA

**EU Funding:** €1,000,000

**Duration:** May 2021 - May 2023

To strengthen conservation and sustainable use of biodiversity in Armenia in line with international/EU standards, proposing legislative and institutional changes in order to improve nature and biodiversity conservation in Armenia, through:

The project will achieve its goal through:

- a) Assisting in preparation of new legislation on nature and biodiversity conservation
- b) Assisting in institutional development and governance in the field of nature and biodiversity conservation
- c) Raising awareness on proposed legislation and institutional changes
- d) Strengthening biodiversity and nature conservation

Learn from/Build on:

Expected amendments of the national legislation aimed at improvement of nature and biodiversity conservation for consideration in own planning and implementation of measures.

- ✓ Protect all species of birds also outside of PAs
- ✓ Protect critical habitats (e.g. wetlands) outside of protected areas as hot spots for endangered species
- ✓ Prevent frequent flow of the human resources of SNCOs managing protected areas

**6. National Adaptation Plan (NAP) to advance medium and long-term adaptation planning in Armenia**

[http://www.nature-ic.am/Content/Projects/1030/PIMS%206036%20GCF%20NAP%20Armenia\\_ProDoc.pdf](http://www.nature-ic.am/Content/Projects/1030/PIMS%206036%20GCF%20NAP%20Armenia_ProDoc.pdf) (UNDP)

**GCF funding:** \$ 2,726,902

**Duration:** January 2019 - December 2022

Support the Government of Armenia to advance its medium and long-term adaptation planning through addressing the existing barriers, supporting the prioritization of climate change adaptation investments in priority sectors including water resources, agriculture, energy, health, tourism and human settlement, and increase the identification of finance options.

Achieved through project:

- a) The Inter agency coordination is strengthened through establishment of the Council, the mandate, structure and rules of procedures of the Council are updated
- b) Government Decree “On Approval of the National Action Program of Adaptation to Climate Change and the List of Measures for 2021-2025” – approved on 13 May 2021.
  - In support to the implementation of the List of Measures for 2021-2025 the draft Water Resources Sector Adaptation Plan of Armenia was developed and submitted to the MoE in November 2021
- c) This and the preceding adaptation planning projects have played a significant role in demonstrating the management of agricultural resources (pasture, land), infrastructure (irrigation) development, as well as sustainable technologies and practices under the Climate Change factors

Harmonize with the:

- ✓ National Action Program of Adaptation to Climate Change and the List of Measures for 2021-2025, in related priority sectors

**7. II CARMAC project - Community Agricultural Resource Management and Competitiveness**

<http://www.arspiu.am/CARMAC-II-PROJECT.55.0.html?&L=0>

<https://projects.worldbank.org/en/projects-operations/project-detail/P133705> / Implemented by the Ministry of Economy

**Total Project Cost:** \$ 42.67 million (\$23 million IBRD, \$9,67 million IDA, \$10 million recipient), implemented by the Ministry of Economy

**Closing date:** June 2014 - April 30, 2022

The main objectives are to improve the productivity and sustainability of pastures and livestock systems in the target communities (in 190 communities) and to increase the marketable products of selected livestock and high-value agri-food value chains.

The project activities aimed at:

- In targeted communities in upland and country bordering areas supporting the implementation of participatory management plans to improve productivity and sustainability of pasture and livestock systems, through measures such as:
  - a) rotational grazing, protecting areas for regeneration, pasture rehabilitation, improving access to remote pastures, and needs for supplementary fodder production
  - b) stock watering points for a more balanced use of grazing areas
  - c) animal health requirements and breed improvement measures, agricultural machinery for hay and fodder production, measures to improve the marketability of livestock products
  - d) training requirements
  - e) applicable measures to change current practice to reduce vulnerability of climate change in pasture management
- Supporting the development of selected value chains important to Armenia
- Construction of pastures stock watering system in 29 communities, Environmental management and monitoring plans were developed 91 communities from which 27 in Gegharkunik and 6 in Vayots Dzor marzes
- Pasture User Cooperatives (PUCs), comprising pasture users, will be created in up to 100 communities in the eight Marzes with significant pasture areas
- Food safety services
- Seeds and Seedling Development
- Good Agricultural Practices (GAP) - a set of guidelines that cover food safety and hygiene at the farm level; proper pest management and use of pesticides; animal production, welfare and waste management; soil management to limit erosion; water quality protection; and farm labor health and safety.
- Conduct training in community based pasture management planning and monitoring

Learn from/Build on:

- Established Pasture Users Cooperatives (PUCs) in different regions
- Existing Pasture Management and Livestock Development Plans
- Pastures monitoring plans.

**8. Strategy of the main directions ensuring the economic development of the RA agricultural sector for 2020-2030**

<https://mineconomy.am/media/10030/Razmavarutyun.pdf>  
[https://www.e-gov.am/u\\_files/file/decrees/kar/2019/12,1/19\\_1886-2.pdf](https://www.e-gov.am/u_files/file/decrees/kar/2019/12,1/19_1886-2.pdf)

State Funding: \$3,300,000  
 Duration: 2020-2030

Relevant measure:  
 - Develop digital interaction maps of agricultural lands

The LUP4LDN may feed data into the Ministry of Economy’s envisaged digital system for LDN data accumulation and processing for SLM planning

**9. Living Landscapes for Market Development in Armenia**

[Factsheet 7F-10503.01 Living Landscapes for Market Development in Armenia LL\\_EN.pdf](#)

The project is implemented by the World Wild Fund for Nature (WWF) as a part of a broader regional program Eco-Corridor Fund for the Caucasus (ECF)

**Budget:** \$ 4,896,094 / CHF 4’500’000

**Duration:** 15 April 2021 – 31 December 2028

The project aims at improving incomes of farmers and rural businesses in remote areas, thanks to a better economic and more sustainable use of local natural resources and biodiversity, also contributing to promotion of environmental and climate change policies.

Tavush, Lori, Syunik and Vayots Dzor marzes are involved.

The project will initiate or support activities so that:

- Local authorities are able to support the intervention for enhancing economic opportunities within selected landscape-based value chains
- Target municipalities integrate the landscape-based value chain approach in their conservation agreements and in their Landscape/Land Use Management Plans
- A national guideline is developed for the application of the landscape-based value chain approach in nature protection and rural development and submitted to the State authorities for endorsement
- Agricultural service providers improve their operations and/or invest in market infrastructures
- Farmers improve their access to local, regional and international markets
- The principles and experiences of the landscape-based value chain approach are replicated in other locations of Armenia

Learn on implemented and succeeded models for sustainable use of local natural resources, analyze which elements from landscape-based value chain approach can be replicated in Vayots Dzor selected communities, and in Gegharkunik considering the difference of climatic regimes



## 10. Promotion of Eco-Corridors in the Southern Caucasus

**KfW Development Bank funding:**

**Duration:** January 2015 – January 2019

The purpose of the programme is to introduce funding for ecologically sustainable land use in selected eco-corridors in the Caucasus (Armenia, Azerbaijan, Georgia) and thus contribute to interlinking protected areas and enhancing their ecological stability by setting up an “Ecoregional Corridor Fund” (ECF) as an instrument for promoting sustainable land use practices in ecological corridors through contractual nature conservation.

- Promote the connectivity of landscapes and the active involvement of local populations and communities in the protection of biodiversity ecological integrity in large conservation landscapes. ECF aims to conserve biodiversity through the promotion of ecologically sustainable land and resource use in selected eco-corridors in the southern Caucasus region.
- In 30 rural settlements located in the three regions (Ararat, Syunik and Vayots Dzor) attention of local population was focused on environmental issues. In 10 settlements, implementation of long-term conservation efforts to last for 5 to 10 years and to involve community contribution has been started and will be completed in 2025-2028

✓ Learn from the generated experiences of involving communities in the protection of biodiversity ecological integrity in large conservation landscapes

## 11. Modernizing Vocational Education and Training in Agriculture in Armenia (MAVETA)

<https://www.bfh.ch/en/research/research-projects/2021-905-168-513/>

<https://sda.am/modernizing-vocational-education-and-training-in-agriculture-in-armenia-maveta/?lang=en>

Strategic Development Agency (SDA), Swiss Church Aid (HEKS/EPER), the School of Agricultural, Forest and Food Sciences of the Bern University of Applied Sciences (HAFL) and GIZ

**SDC Budget:** \$ 7,759,721.60 / CHF 7'130'000

**Duration:** December 2021 – 2030

The project aims to improve employment opportunities of youth living in rural areas by the means of combining theoretical knowledge with practical training in a selected number of professions in agriculture

The project will be executed in the Southern Syunik and Vayots Dzor and several Northern regions

Professional courses under consideration will enable young farmers to acquire a formal qualification certificate, sources are selected in line with priority areas, including:

- Milk transformation
- Veterinary
- Nut and fruit agronomy
- General farming
- Meat processing
- Food safety
- Forestry
- Rural tourism

The project is newly started, will expand capturing northern regions. In Gegharkunik the GEF project will explore harmonization in order to support the involvement of young farmers in VET.

## 12. Sustainable Land Management for Increased Productivity in Armenia Programme (SLMIP)

<https://www.raed.am/en/programms/ongoing-programmes/infrastructure-and-rural-finance-support-programme.html>

[https://minfin.am/en/content/international\\_fund\\_for\\_agricultural\\_development\\_ifad\\_/#sthash.0MNOQAmZ.dpbs](https://minfin.am/en/content/international_fund_for_agricultural_development_ifad_/#sthash.0MNOQAmZ.dpbs)

<https://ace.aua.am/files/2019/05/2015-IFAD-Sustainable-Land-Management-for-Increased-Productivity-in-Armenia.pdf>

### IFAD/GEFTR joint project

**GEFTF grant** of \$ 3,937,500 will be matched by a IRFSP baseline contribution summing an IFAD soft loan of \$ 5.9 million, IFAD grants of \$ 350,000, and OFID loan of \$ 23.2 million – with a total estimated cost of \$ 33,410,500 covering the GEFTF grant and the co-financing'

Duration: 2015 – 2021 [https://www.raed.am/images/pdf/GEF\\_FD241219.pdf](https://www.raed.am/images/pdf/GEF_FD241219.pdf) - [https://minfin.am/en/content/international\\_fund\\_for\\_agricultural\\_development\\_ifad\\_/#sthash.VwPWw3TI.dpuf](https://minfin.am/en/content/international_fund_for_agricultural_development_ifad_/#sthash.VwPWw3TI.dpuf)

The SLMIP builds on the IRFSP (Infrastructure and Rural Finance Support Programme) baseline programme to integrate soil and water conservation measures in the development of the targeted high value agroforestry and vegetable crops and restore the resilience to land degradation and climate-risks of the agro-ecosystems through investments in sustainable land management systems and technologies, enhancing the overall resilience of rural communities living in risk-prone areas of Armenia.

Vayots Dzor municipalities were among beneficiaries.

#### GEFTF/SLMIP interventions:

1. Mainstream the adoption of climate-proof technologies in the tertiary irrigation systems rehabilitated by the baseline interventions, and support the conversion of marginal communal lands into climate-resilient agroforestry plantations, managed with efficient irrigation technologies and soil and water conservation agronomic systems, specifically targeting women groups
2. Adopt an ecosystem-based landscape approach and identify vulnerable sites to land degradation and implement integrated landscape restoration interventions to enhance the functionality and durability of the irrigation schemes, prevent soil erosion degradation, and improve vegetation cover along water courses, catchment areas and mountain slopes
3. Create an enabling environment to enhance the capacity of smallholder farmers, decision makers and all relevant actors, to incorporate good practices in agriculture production and landscape restoration that help mitigate desertification and land degradation problems

#### Learn on sustained experiences from:

- ✓ efficient irrigation technologies and soil and water conservation agronomic systems
- ✓ tested success models of climate smart irrigation schemes, preventing soil erosion degradation, and improving vegetation cover

## 13. Projects and activities implemented by the Ministry of Environment with state funding

- a) Cleaning of flooded forest landscapes of Lake Sevan
- b) Inventory of fish and crayfish stock in Lake Sevan and Lake Sevan basin
- c) Conservation of Sevan National Park, scientific research and forestry work in the Park (Sevan national Park maintenance costs)
- d) Forest conservation services (Hayantar SNCO maintenance costs and payroll)
- e) Coordination of services and projects developing and supporting forest policy (Forest committee costs)
- f) Monitoring of hydrometeorology and environment, and provision of information ("Hydrometeorology and monitoring center" costs)
- g) Combat against forest pests
- h) Afforestation and reforestation work
- i) Development of Forest Management Plans
- j) Effective management of natural resources and biodiversity conservation

k) Management and conservation of natural resources and specially protected areas  
[https://www.e-gov.am/u\\_files/file/decrees/kar/2021/08/1395\\_7.pdf](https://www.e-gov.am/u_files/file/decrees/kar/2021/08/1395_7.pdf)

State budget: \$11,401,813

a) 236,326	b) 3,235,220
c) 15,180	d) 87,422
e) 863,959	f) 836,023
g) 2,670,970	h) 377,065
i) 495,255	j) 2,584,393

**Total: 11,401,813**

Duration: January – December 2022

**14. Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus (ECOserve)",**  
[https://biodivers-southcaucasus.org/uploads/files/GIZ\\_Factsheets\\_A3\\_Aug\\_2019\\_ECO\\_ENG\\_ARM.pdf](https://biodivers-southcaucasus.org/uploads/files/GIZ_Factsheets_A3_Aug_2019_ECO_ENG_ARM.pdf)  
<https://www.giz.de/en/downloads/ECOserve.pdf> / <https://www.giz.de/en/worldwide/76256.html> / <https://biodivers-southcaucasus.org/countries/armenia>  
 Implemented in Armenia (in Lori and Shirak marzes), Azerbaijan, and Georgia

**BMZ Budget:** EUR 17 760 870 (including EUR 4 000 000 EU co-funding in Armenia and EUR 260 870 SDC co-funding in Georgia)

**Duration:** December 2018-November 2021

Sustainable and biodiversity-friendly use of natural resources in the dominant land-use systems (grazing, agriculture, forest), taking into account the energy security of the rural population, which often relies heavily on natural resources

**Pasture-related results:**

- ✓ Improving data access as a basis for decision making on pasture
- ✓ Improving the institutional framework for sustainable pasture management
- ✓ Development of replicable examples of improved pasture management
- ✓ Raising the level of environmental awareness on natural resource management and on rural energy
- ✓ In pilot areas, practices or innovations will be developed for improved land-use and more efficient use of natural resources for heating purposes, promote the use of alternative energy sources, biofuels, develop and test marketable products customized to specific target groups which will further reduce the pressure on forests and pastures
- ✓ Education for the management level, for technical experts and for resource users will be improved for them to contribute to more sustainable management of the natural resources

**Learn from:**

- Methods for collecting data on forestry, pasture, farming, and biodiversity, training of users on how to keep data up to date
- Consolidation of databases, mapping of grasslands and pastures and the linking of this information with existing databases on, for instance, endangered species / biodiversity
- Good practices in pasture management and integration of ecosystem services into planning in enlarged municipalities
- Learn on sustainability of using energy efficient stoves, manufactured by local craftsmen, introduced to around 50 rural households in Armenia

### 15. River Basin Management Plan Armenia (EUWI+)

[https://unece.org/DAM/env/water/npd/EUWI\\_Plus/EUWI\\_Inception\\_Report.pdf](https://unece.org/DAM/env/water/npd/EUWI_Plus/EUWI_Inception_Report.pdf)

**Funding:** OECD: €4 394 791 (including co-financing) UNECE: €3 316 000 (including co-financing) EU Member State Consortium: €17 400 000 (including co-financing)

**Duration:** 01.09.2016 - 31.08.2020

Support to Armenian government to bring water legislation closer to the EU Water Framework Directive and develop three rivers basin districts management plans, Sevan Basin among them. Support to improved farming practices in Sevan basin, agroforestry measures and improvement of forest ecosystem management; support to integrated monitoring and availability of data on ecosystems and species in Sevan basin.

The project delivered:

- Result 1: Legal and regulatory framework improved in line with the **WFD, Integrated Water Resources Management** and Multilateral Environmental Agreements. In the field of **water quality and resources management**, Armenia's efforts to adjust its legislation to 5 Directives:
  - ✓ Water Framework Directive
  - ✓ Floods Directive
  - ✓ Urban Wastewater Directive
  - ✓ Drinking Water Directive and
  - ✓ Nitrates Directive
- Result 2: **River Basins Management Plans** designed and implemented in line with the WFD principles [River Basin Management Plan - EUWIPLUSEAST](#)
- Result 3: Lessons learnt are regularly collected, shared and communicated to **stakeholders**

Harmonization with the:

- Sevan Basin Management Plan and river basin approaches;
- Existing good practices of sustainable farming practices in Sevan basin, agroforestry measures and improvement of forest ecosystem management
- integrated monitoring and availability of data on ecosystems and species in Sevan basin

### 16. EU for Environment in EPC – Water Resources and Environment Data

**Budget:** €12,750,000 includes 600,000 from ADC and 150,000 from Agency Artois -Pic./FR

**Duration:** January 2022 – June 2024

Implemented in Armenia, Azerbaijan, Belarus\*, Georgia, Moldova, Ukraine

Improve the management of natural resources to build a green future - Improve environmental, climate and socio-economic resilience, and human health building on EUWI+ and SEIS I

Strengthen governance and capacity for IWRM, more sustainable water use  
 Extend scope to other key aspects economic soundness, COVID-19, financing  
 Extend the environmental database for knowledge-based decision-making and the access to open data

Build on

- Existing environmental monitoring data base and river basin management approaches

### 17. Integrated Biodiversity Management in the South Caucasus / IBiS

<https://www.giz.de/en/downloads/giz2015-en-integrated-biodiversity-management.pdf>

<https://www.giz.de/en/worldwide/20319.html>

Implemented by GIZ in Armenia, Azerbaijan, and Georgia

**Budget:** 14,9 Mio. Euro - thereof 5 Mio. Euro (OeZA) Countries: Armenia, Azerbaijan and Georgia

**Duration:** December 2015 to November 2019

<p>Management of biodiversity and ecosystem services, coordinated across various sectors improved through the use of solid precise (geo-spatial) data, focus on preserving natural ecosystems, and sustainable management, in particular pastures and grasslands</p>	<ul style="list-style-type: none"> <li>- Strategies and regulations are being drawn up or reviewed to improve the situation for managing biodiversity and ecosystem services</li> <li>- The regulatory framework is improved</li> <li>- In pilot areas, erosion control measures successfully tested</li> <li>- Biodiversity topics are embedded into the curricula of training institutions</li> <li>- Functions and obligations of local self-governmental in regard to land management and environment related processes</li> </ul>	<ul style="list-style-type: none"> <li>- Learn from gained experiences on erosion control and obligations of local self-government with regard to land management and environmental training curricula'</li> </ul>
<p><b>18. Mainstreaming Sustainable Land and Forest Management in Mountain Landscapes of North-eastern Armenia</b>  <a href="https://www.thegef.org/projects-operations/projects/5353">https://www.thegef.org/projects-operations/projects/5353</a> Implemented by UNDP</p>		
<p><b>Budget:</b> \$2,977,169.00  <b>Duration:</b> January 2016 - December 2020</p>		
<p>To ensure sustainable land and forest management to secure continued flow of multiple ecosystem services. This would be achieved through two main components, namely:</p> <ul style="list-style-type: none"> <li>i. Integration of sustainable forest and land management objectives into planning and management of forest ecosystems to reduce degradation and enhance ecosystem services in two Tavush and Lori marzes</li> <li>ii. Sustainable Forest Management practices effectively demonstrating reduced pressure on high conservation forests and maintaining flow of ecosystem services</li> </ul>	<ul style="list-style-type: none"> <li>- Survey of community degraded pastures in forest and near the forest areas, mapping, assessment, implementation of rehabilitation measures</li> <li>- Cultivation, fodder in the demonstration areas of uncultivated arable lands, consultation on organizing and professional crop sowing works</li> <li>- Support with creating efficient grazing systems, additional fodder base and reduce livestock impact on adjacent forest ecosystems</li> </ul>	<p>Learn from:</p> <ul style="list-style-type: none"> <li>• successes in pasture rehabilitation measures</li> <li>• efficient grazing systems, additional fodder base and reduced livestock impact on adjacent forest ecosystems</li> </ul>
<p><b>19. Sustainable management of pastures and forest in Armenia to demonstrate climate change mitigation and adaptation benefits and dividends for local communities /</b>  <a href="file:///C:/Users/gayane.gharagebakyan/Downloads/CE_ProDoc_ENG-1.pdf">file:///C:/Users/gayane.gharagebakyan/Downloads/CE_ProDoc_ENG-1.pdf</a></p>		
<p><b>EU Funding:</b> \$ 1,489,609  <b>Duration:</b> May 2013 - December 2016</p>		
<p>Adoption of sustainable natural resource management practices under adverse impacts of climate change on mountainous ecosystems of Armenia to ensure ecosystems integrity and sustained provision of ecosystem services, including carbon capture and storage.</p> <p>The Gegharkunik marz (province) has been selected for the project intervention, the main target region within the marz will be Vardenis region.</p>	<ul style="list-style-type: none"> <li>- Introduction of pasture management system, including rehabilitation of 2000 ha of meadows and forest belts</li> <li>- Avert further deterioration of natural resources (biodiversity, land, water, forest), promote better understanding of problems related to climate change impact and potential for adaptive management, its socio-economic dimension, agricultural productivity and food security, enhancement of local capacities for sustaining their livelihood level in face of climate change</li> </ul>	<p>Learn from/Build on:</p> <ul style="list-style-type: none"> <li>• Consider potential use of the Guideline for conducting vulnerability assessment of mountain rangeland and forest ecosystems in Vardenis sub-region of Gegharkunik Marz in Armenia</li> </ul> <p><a href="https://ace.aua.am/files/2019/05/2014-UNDP-Guidelines-for-conducting-vulnerability-assessment.pdf">https://ace.aua.am/files/2019/05/2014-UNDP-Guidelines-for-conducting-vulnerability-assessment.pdf</a></p>

**20. Rural Economic Development-New Economic Opportunities (RED-NEO)**<http://card.am/en/categories/1/projects/22> Implementor CARD

<b>USAID Funding:</b> <b>Duration:</b> February 2019 - February 2024		
Promotes inclusive, sustainable economic security and growth by connecting producers and buyers, establishing networks to support economic development, and improving Small Medium Enterprises and farms to develop and grow. The project works in 60 communities throughout all 10 marzes in Armenia and focuses on the horticulture value chain and the hospitality sector	The project works in the following value chains: <ul style="list-style-type: none"><li>- Horticultural production, fruit/berry production and processing, greenhouse production, nursery production</li><li>- Agricultural mechanization services</li><li>- Agritourism and apiculture</li><li>- Overall, 100 small grants will be provided - grants will be disbursed in 60 communities of 10 regions of Armenia</li></ul>	Harmonization with: <ul style="list-style-type: none"><li>- The potential small grants implemented in Gegharkunik and Vayots Dzor regions.</li></ul>

## 2. Assessing and documenting results

The project team will ensure extraction and dissemination of lessons learned and good practices to enable adaptive management and upscaling or replication at local and regional scales. Results will be disseminated to targeted audiences through relevant information sharing fora and networks. The project will contribute to strengthening the scientific data-base on biodiversity (valuable species and habitats in Sevan Basin landscape enriching the data base on climate change impact on key species and habitats and land degradation information, and strengthening the existing assessments of the ecological status of several river systems that represents key fish spawning grounds therefore enabling evidence-based policy making and supporting inter-sectorial coordination and broad stakeholder participation.

Assessment of project results could start with establishing a baseline and a targeted questionnaire can be conducted at the project inception and at project end, by the specialized PR company and/or technical experts, targeting four groups: (i) general public, NGOs, representatives of media (ii) government officials at local and national levels with activities relevant to natural resources management (iii) local natural resources/wetlands users, farmers, pastoralists, local households; (iv) private enterprises, microcredit organizations, banks. The questions will assess awareness on the following key issues:

- Unsustainable agricultural practices in the Sevan basin landscape and their negative impact Sevan Lake and associated river systems, degradation of land, wetlands, and riparian areas. Focus on desired change of behaviors for example: 1) farmers apply sustainable agricultural practices; 2) Farmers use distant pastures, pay pastures rent; 3) local authorities use the pasture leasing fees for improvements of pasture infrastructure; (5) Farmers use winter fodder, and understand that unsustainable grazing (especially early in spring) leads to increase land degradation; 6) Farmers use efficient water management collection, storage and invests in on-farm repairs; 7) community residents use alternative energy sources such as fuel briquettes instead of timber; 8) local communities use sustainable arresting of forest products (wild berries; mushrooms; fruits and medicinal plants etc);
- Habitat destruction and inappropriate biodiversity management and the need for community supported wildlife corridors.
- Wetland's ecosystem services of Sevan Ramsar area and their importance for environment and livelihoods.

During the PPG stage, the PPG team together with the UNDP Armenia Innovation Lab team have conducted a brief Behavior change feasibility analysis and recommendations, which highlight the importance of changing behaviors among both farmers and policy makers; cooperation among all local stakeholders and the engagement of local communities in the PAs, enabling their participation in the local decisions over the natural resources and incentivizing the gradual switch to green business models.

### **Measurement of the interventions** (excerpt from Behavioral change analysis conducted at PPG stage)

To measure the effectiveness of the interventions, a few data collection and assessment methods are suggested. Both experimental and non-experimental methods can be used for different interventions. The most rigorous way of measuring behavior change is the experimental method of Randomized Controlled Trials (RCTs). RCTs are the gold standard for studying causal relationships as randomization helps to control the external factors so that the change can be attributed to the implemented intervention only. An RCT helps to measure the effectiveness of an intervention by comparing the results between treatment and control groups. The treatment group is the group receiving the intervention while the control group does not receive any intervention. For example, in two similar communities, the first community will receive a workshop while the second one won't. In the end, the behavior change in two communities will be measured, and we will be able to attribute the change to the conducted workshop. Those communities that were included in the control groups in the first round, will receive the same intervention if the experiment proves the intervention to be effective. Otherwise, if the experiment shows no effect, the design of the intervention will be improved before applying it to other communities.

Understandably, although the experimental method is the most scientifically rigorous one, RCTs require more time and resources. Besides RCTs, other research methods and tools can be utilized too as valid evaluation methods. The methods of surveys, pre- and post-assessments, qualitative interviews and desk research of administrative data can be effectively applied to assess the intervention outcomes.

For each intervention, a decision should be made about the measurement methods based on defined standards. To choose between the experimental or non-experimental methods for each intervention, we suggest using a simple rule of thumb based on two criteria- 1) the significance of the intervention among the other Project activities; 2) the size of resources spent on the intervention as compared to other activities. If the intervention is an important one and more resource-consuming, it is recommended to measure it by an RCT to avoid the scaling of expensive interventions without prior testing. Otherwise, other methods and techniques listed above can be utilized.

### 3. Knowledge sharing and Communication

The project information dissemination system will be based on a package of various information thematic products that will contribute to raising the stakeholders awareness on issues related to wetland ecosystems in Sevan River basin and the impact of climate change on wetlands, forests and pastures/grasslands, biodiversity conservation in PAs and KBAs/IBAs , integrated water/land management harmonized with IWRM principles (via the Sevan Inter-sectoral coordination committee), biodiversity friendly rural business models. The project will use a mix of information channels, including traditional print and electronic materials, media publications, formal and informal forums and face-to-face meetings, internet sites and forums, and social media. Tailored delivery of information will ensure the most effective, locally available and accessible communication ways for specific audience.

The project stakeholders are diverse in terms of knowledge, awareness, cultural background, influence, and interests. These include decision makers at the regional and local levels, farmers, local users of resources, the public, including media, NGOs, representatives of the tourism industry, teachers, border guards, representatives of oil and gas companies, donors, financial organizations, international project consultants, UNDP and other international partners of the project, etc.

#### **Behavior changes strategies based on assessments and recommendations at PPG stage (excerpt from the Behavioral change feasibility analysis)**

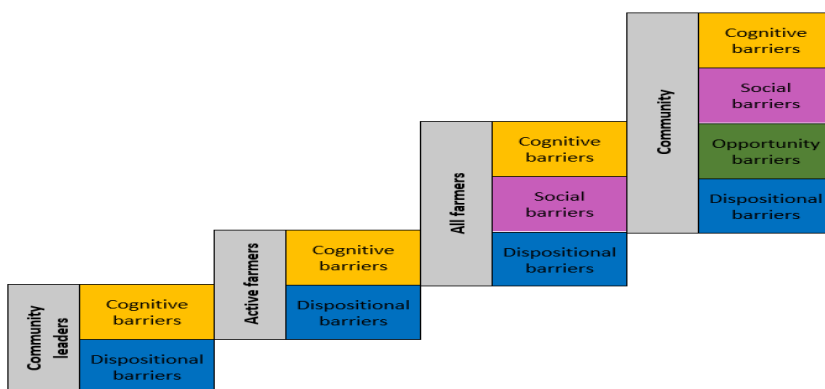
As we deal with complex behavioral challenges, behavior change will require a comprehensive set of solutions addressing groups of barriers in a phased manner. This approach will help not to limit the Project with one-time interventions but work on behavior change as the Project progresses. The behavior change interventions should start addressing the barriers that are easier to tackle and move on to more complex ones. As suggested by the framework by Dessart et al.<sup>89</sup>, groups of factors influencing decisions have different weights, hence different levels of resistance to change. Similarly, there are differences in different target groups with some being more ready to change while others are less change tolerant. Combining these two variables- target groups and groups of factors, we propose a **cascade of behavioral interventions** (Fig. 1).

As illustrated in the graph, the interventions should start from the “easiest” target group and the easiest group of barriers- cognitive barriers of community leaders. We recommend working with this target group at the first stage as, according to the results of the Barrier Analysis, the community leaders are more inclined to adopt innovative practices, hence their behavior can be changed more easily with nudging. Also, the hypothesis about community leaders being the influencer group was confirmed. As stated by the participants of the study, the new practices are usually tested by the community heads first, and if their experience is successful, the residents adopt and start using the new method or approach in their agricultural practices. This is an enabler that can be used for leveraging and scaling up the desired behaviors to reduce pasture degradation and preserve grassland biodiversity.

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<sup>89</sup> Dessart et al. (2019). Behavioral factors affecting the adoption of sustainable farming practices: a policy-oriented review, *European Review of Agricultural Economics* Vol 46 (3) (2019) pp. 417–471





**Fig. 1. Behavior change cascade**

Bujold & Thulin in their research with farmers in Colombia differentiated three types of farmers based on their level of resistance to adopting sustainable agriculture practices- Low-resistance farmers, Mid-resistance farmers, and High-resistance farmers, and recommended working with them with separate sets of nudges, stage by stage building up community confidence<sup>90</sup>. Following this logic, we propose, after community leaders, engaging farmers that are open to change and will adopt the practices of remote pasture usage when their cognitive barriers are addressed (we called them Active farmers in this concept note). Active farmers are supposed to be the large farm owners, as the Barrier Analysis has shown that for the small livestock owners it is not economically viable. After starting to work with the first two groups, the scope of interventions can gradually enlarge covering all the other farmers in the community, using the social influence of the community leaders and active farmers. The last phase of the cascade approach will aim to spread the culture of sustainable land management practices in the entire community. As dispositional factors are one of the hardest to change, we recommend integrating various solutions addressing these types of factors in all interventions regardless of the target groups. As for opportunity barriers, as this group of barriers is connected to external factors, their impact on the possibility to practice a certain behavior is significant and cannot always be resolved by behavioral interventions. The results of the Barrier Analysis showed that the majority of identified opportunity barriers (like accessibility problems, absence of markets, issues of camping infrastructure) cannot be merely addressed by choice architecture. The behavior change interventions here will be effective only if they complement Project interventions addressing structural and institutional issues (such as infrastructure development, construction of shelters for shepherds, etc.). In that case, behavioral insights can accompany those initiatives making the Project activities more targeted and behavior centric.

**Specific strategies to address barriers for behavior change**

Although community heads seem to be aware of the dangers of the land degradation and the factors affecting the degradation, at the same time **they are not actively engaged in land management**, particularly in land improvement, pasture inventory, development of pasture management plans, and do not control the use of pastures. To address this barrier and **develop a sense of responsibility and ownership followed by actions** for the land and pasture management, we propose conducting participatory co-design sessions for developing pasture inventory and management plans led by a trusted advisor. The session will bring together the community leader, local government representatives, active farmers, and project experts. Design thinking techniques can be used to make the management plans feasible and viable enough to ensure not only commitment but also action by the community heads and local governments. An expert from the Project can be attached to each community as an advisor who will facilitate the sessions and help to guide the process, but the overall process should be participatory and collaborative, so the community leaders and farmers develop a sense of ownership. The influence of trusted advisors has been tested by many experiments. A study of dairy farmers

<sup>90</sup> Bujold P., Thulin E. (2021). Complex Behavioral Challenges Require Multi-Faceted Behavioral Solutions: Driving Change in Sustainable Agriculture, in A. Samson (Ed.), The Behavioral Economics Guide 2021

in the Netherlands found that decision-making behavior regarding animal husbandry was significantly influenced by feed and health advisors<sup>91</sup>. Hence, involving a professional will increase the community leaders and active farmers' trust towards the proposed methods.

To increase the commitment of the local government leadership to act, methods of **planning prompts and public commitment** can be used. Evidence from different fields has proven that planning prompts can encourage behavior change. Users write down specific actionable plans formulating actions that they are motivated to enact. Having a tangible action plan on hand helps to reduce the **intention-action gap**. Research has also shown that when people promised to perform a task, they often completed it. People imagine themselves to be consistent and will make an effort to keep up this appearance in public<sup>92</sup>. Hence, we recommend creating mechanisms to **share with the public the co-designed action plan with a timeline as well as progress updates** at the end of the co-design sessions (on the community's website, Project's or community's social media platforms).

The results of many behavioral interventions show that the **reminders** help to increase the probability of the practice of the desired behavior. For instance, in an experiment conducted by the SDG Innovation Lab, the effectiveness of checkup invitations was increased significantly when followed by reminders<sup>93</sup>. Having this evidence, we recommend sending mail or SMS reminders regularly to the community heads reminding them about the action plan.

Another technique to nudge the adoption of the desired behavior is the use of **incentives**. Although studies have indicated that monetary incentives are more effective (e.g. an RCT by the SDG Innovation Lab about the plastic bag usage reduction<sup>94</sup>), other incentives can be helpful as well. For instance, **praising** the communities, their leaders or farmers for making progress. Praising can be in the form of receiving symbolic prizes or titles like "the community of the month" or "the farmer of the month".

As there is a perception that **the management of the rural communities is not a priority in the amalgamated communities** where the community center is an urban residence (Martuni, Vardenis, Vayk), there is a specific need to work with **the mayors to draw their attention to the agricultural issues**, including land degradation and pasture management. **Behaviorally informed campaigns** for community leaders with advocacy materials using emotional appeals that highlight the importance of the village and agriculture in overall community development can help to address this barrier.

As the Barrier Analysis has identified **a lack of management and farming skills of both community leaders and farmers**, **we recommend conducting workshops with local government representatives and farmers to enhance management skills and capacities**. To make the learning process more effective, we suggest **experience sharing through study visits as part of the workshops** to communities with success stories. This intervention will cover wider groups of farmers, including those less tolerant to change. That is why it is important to actively utilize social levers here, including **peer-to-peer learning, role models with success stories and comparison between communities**. Peer-to-peer learning will also contribute to the sustainability of the Project outcomes. Although, the literature is recommending the option of collective bonuses as a possible effective way of social influence, we suggest being cautious with including this method, given the failed experiences of agricultural cooperatives in the Armenian communities.

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<sup>91</sup> Bruijnis, M., Hogeveen, H., Garforth, C., Stassen, E. (2013). Dairy farmers' attitudes and intentions towards improving dairy cow foot health, *Livestock Science*, 155 (1): 103-113

<sup>92</sup> Gharad B., Karlan D., and Nelson. S., (2010). "Commitment Devices." *Annual Review of Economics* 2 (1): 671–98.

<sup>93</sup> Antinyan A, Bertoni M, Corazzini L. (2021). Cervical cancer screening invitations in low- and middle-income countries: Evidence from Armenia. *Soc Sci Med.* 2021 Mar; 273:113739. doi: 10.1016/j.socscimed.2021.113739. Epub 2021 Feb 7. PMID: 33609965.

<sup>94</sup> Antinyan A, Corazzini L. (2021). Take me with you! Economic Incentives, Nudging Interventions and Reusable Shopping Bags: Evidence from a Randomized Controlled Trial, Working Papers, Department of Economics, Ca' Foscari University of Venice, N08/W P/2021, ISSN 1827-3580

A common barrier revealed by the Barrier Analysis, along with the lack of farming skills, was **the absence of financial estimation skills**. Given this barrier, the intervention should aim to **prove the value of adoption of the behavior**. It is not always that the relative advantages of the proposed behaviors are obvious. If farmers do not perceive that there is value in adopting a new behavior, then they are likely to stick with the status quo<sup>9596</sup>. Expert estimation can be shared with farmers showing the benefits of the new practices, e.g. estimations on how the production of the milk will increase and how it will translate into monetary gains. The bias of **loss aversion** can be utilized here, showing how much money the farmers lose when not taking the cattle to the distant pastures. As the literature shows that for farmers **face-to-face meetings/workshops** were proven to be more effective than printing and distributing<sup>97</sup>, this information can be provided to farmers by peers or influencers (the community heads or advisors as a trusted source of information).

To make the behavior change more sustainable, engaging various layers of society is important. Considering the barrier to **passing on the farming business to the younger generation as the latter do not want to be engaged in livestock farming**, we propose an intervention aiming to **encourage younger people to obtain an education in agriculture and continue the family business**. Intervention can combine the information provision framed with social norms and emotional appeals, stressing **the value of continuing the ancestor's legacy and the importance of helping to keep the sustainability of the family's hard work**. This is a broader intervention encouraging the continuity of agricultural practices and not just pasture management practices. The results of this intervention will be visible in the long-term perspective.

### Summary of the main proposed behavior change activities at local level

**Table 1. Summary of behavioral intervention**

Target group	Barriers	Goal	Intervention strategy	Behavioral levers and instruments
<ul style="list-style-type: none"> <li>Local authorities</li> <li>Active farmers</li> </ul>	<ul style="list-style-type: none"> <li>Not actively engaged in land management</li> </ul>	<ul style="list-style-type: none"> <li>Develop a sense of responsibility and ownership followed by actions</li> <li>Promote collaboration approaches</li> </ul>	<ul style="list-style-type: none"> <li>Conducting co-design sessions</li> <li>Advisors</li> <li>Sharing with the public the co-designed action plan with timeline as well as progress updates</li> </ul>	<ul style="list-style-type: none"> <li>Information <ul style="list-style-type: none"> <li>Trusted sources (advisors)</li> </ul> </li> <li>Social influence <ul style="list-style-type: none"> <li>Public commitment</li> </ul> </li> <li>Choice architecture <ul style="list-style-type: none"> <li>Planning prompts</li> <li>Reminders</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>Local authorities in urban centers</li> </ul>	<ul style="list-style-type: none"> <li>The management of the rural communities not a priority in the amalgamated communities</li> </ul>	<ul style="list-style-type: none"> <li>Increase the salience of the agriculture</li> </ul>	<ul style="list-style-type: none"> <li>Behaviorally informed campaigns</li> </ul>	<ul style="list-style-type: none"> <li>Information</li> <li>Emotional appeals</li> </ul>
<ul style="list-style-type: none"> <li>Local authorities</li> <li>Farmers</li> </ul>	<ul style="list-style-type: none"> <li>Lack of management and farming skills</li> </ul>	<ul style="list-style-type: none"> <li>Improve farming and management skills</li> </ul>	<ul style="list-style-type: none"> <li>Workshops <ul style="list-style-type: none"> <li>Peer-to-peer learning</li> <li>Study visits</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Social influence <ul style="list-style-type: none"> <li>Comparing communities</li> <li>Role models</li> <li>Success stories</li> </ul> </li> </ul>

<sup>95</sup> Sutherland, L.A., Burton, R. J., Ingram, J., Blackstock, K., Slee. B., Gotts, N. (2012). Triggering change: towards a conceptualisation of major change processes in farm decision-making, *Journal of Environmental Management*, 104: 142-151

<sup>96</sup> Rose, D. C., Keating, C., Morris, C. (2018). Understanding how to influence farmers' decision-making behaviour: a social science literature review, report for the Agriculture and Horticulture Development Board, supported by UEA Consulting Ltd

<sup>97</sup> Ibid

				<ul style="list-style-type: none"> <li>• Incentives <ul style="list-style-type: none"> <li>○ Monetary</li> <li>○ Praises</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Farmers</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of financial estimation skills</li> </ul>	<ul style="list-style-type: none"> <li>• Show the benefits of the proposed behavior</li> </ul>	<ul style="list-style-type: none"> <li>• Face-to-face</li> <li>• workshops with community leader and advisors</li> </ul>	<ul style="list-style-type: none"> <li>• Information</li> <li>• Emotional appeals <ul style="list-style-type: none"> <li>○ Monetizing the potential gain</li> <li>○ Stressing the loss aversion</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Young People</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of motivation to be engaged in livestock farming</li> <li>• Avoiding education in agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage younger people to obtain education in agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Educational materials that highlight the importance of agriculture</li> <li>• Information packages about education opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Information</li> <li>• Social norms</li> <li>• Emotional appeals <ul style="list-style-type: none"> <li>○ Continuing the ancestor's legacy</li> <li>○ Sustaining family's hard work</li> </ul> </li> </ul>

The overall proposed objectives of the communication and awareness raising activities could be summarized below:

**1.** Raising awareness of stakeholders, their level of knowledge, and understanding of approaches to sustainable farming and land and freshwater management; the benefits of greening the businesses in and around protected areas in the Sevan basin landscape; the importance of the wetlands ecosystem services for environment and livelihoods; the importance of LDN compliant land use planning including biodiversity and climate change considerations; the need to repurpose or re-direct some of the existing incentives for intensification of agriculture production towards biodiversity and nature-positive solutions in agriculture sector. The implementation of this goal will aim to bridge the knowledge and awareness gaps highlighted by the behavioral change analysis as well (Annex 23); a more refined and targeted questionnaire/surveys will be conducted by the project team and specialized consultants at the Inception stage. A significant contribution to the implementation of Component 4 and the achievement of final result 4.1 will be ensured by conducting educational and information campaigns to change behaviors of the local communities and local resource users (including private entrepreneurs operating in the PA and around KBAs/IBAs) as well as of local and national decision makers and financial institutions' representatives in order to promote green financing.

**2.** Strengthening communication and collaboration between key project stakeholders at Sevan basin landscape level and increasing Armenia's participation in the regional knowledge sharing among countries with similar climatic conditions. In coordination with the EU4Sevan project, the GEF project will strengthen the capacity of the Inter-sectorial Sevan Committee for integrated policy making and harmonizing LDN compliant landscape management approaches with IWRM and river basin approaches. Collaboration with other countries in the region (e.g., through the regional LDN workshop and participation in different KM platforms) with similar environment and climatic conditions is also essential for sharing best practices and fostering a learning environment to enhance global benefits in terms of negative impacts on carbon sequestration and climate change, resilient ecosystems and livelihoods. In this regard, the collaboration with regional platforms (e.g. IW:Learn; WOCAT) and organizations such as WWF, REC, FAO platforms, GIZ knowledge networks as well as other development partners will be promoted.

**3.** Development of communication at the project level, ensuring transparency and wide dissemination of its results. The involvement of the media in the project is of particular importance. Active media engagement will contribute to raising the awareness of journalists, as well as creating the basis for ensuring transparency and wide dissemination of the results of the project, contributing to its sustainability.

## Annex 23: Behaviour change baseline analysis

(Please see separate report)

### **Summary of project's adherence to the LDN checklist**

#### **Criterion A: Fundamental LDN principles:**

- Use landscape approach: Lake Sevan Basin landscape (please refer to Annex 16: Target landscape, and maps).
- Promote no-net loss: Component 1 includes activities to set the no-net-loss target for the landscape and action plan to attain it.
- Avoid-reduce-reverse hierarchy: The project stems from integrated LDN compliant land use planning (Output 1.1.1 and 1.1.2) that will define areas where productivity loss is going to be avoided, as well as areas that need mitigation or restoration. Concrete investments in planning and demonstrating LDN guided SLM is all about the nature of the Outputs 3.1.1; 3.1.2; 3.1.3 3.1.4.
- Contribute to sub-national targets. Under Component 1, the project sets up a sub-national (regional) target and implements key activities to trigger their achievement.
- Be site/country-tailored. The project has been fully tailored to the national and landscape context.
- Include LDN monitoring system: presented as part of Output 1.1.1
- Gender considerations and stakeholder engagement: Addressed through the Gender Analysis and Gender Action Plan.

#### **Criterion B. Deliver multiple benefits.**

- Link to multiple SDGs, focal area benefits and sustainable livelihoods: This is the essence of the project, its rational, objective and design are fully in line with the multiple-benefits philosophy.
- Provide economic incentives to local actors: The project incentivizes local actors away from destructive behavior through engaging them in alternative economic activities (e.g. Output 2.2.1, 3.1.1; 3.1.2; 3.1.3), as well as biodiversity-friendly livelihoods under Output 3.1.4.
- Base land decisions on the "assessment" approach: The integrated and multi-stakeholder nature of land use planning is fully evidenced from Output 1.1.2

#### **Criterion C. Promotion of inclusive governance**

- Safeguard land rights of local users: As explained in the description of Output 1.1.2 the idea behind the integrated land use planning is exactly about ensuring that the rights of land users are respected while enabling them to derive maximum long term benefits from use of ecosystem products and services. UNDP has a Social and Environmental Safeguard Procedure (SESP) which screens projects (including for this criterion) and does not allow projects that do not comply.
- Ensure prior informed consent; avoid forced displacement; put in place grievance redress mechanisms. Addressed through UNDP SESP protocol (mentioned above).
- Define gender responsive engagement: Addressed, as discussed in the Gender Action Plan.

## Annex 25: Co-financing letters ss

(Please see separate document)