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Sustaining agricultural biodiversity in the face of climate change in Tajikistan

Brief description

According to the Russian botanist and geneticist, Nikolai Vavilov, Tajikistan is a storehouse of globally important agro-biodiversity. The country is one of the centers of origin for cultivated plants worldwide. Diverse climatic, geological, and environmental conditions gave rise to this rich biodiversity, best indicated by almost 9,800 plant accessions recorded in Tajikistan. Many of the landraces and their wild relatives potentially house resistances and tolerances to pests, diseases, and to abiotic stresses. As such, they constitute a valuable source of genetic material for future germplasm enhancement programmes around the world. Tajikistan's agricultural biodiversity is not only of importance to the livelihoods of rural communities, to the local economy, and to local long-term food security, but also to global food security particularly in light of the future challenges of global climate change. The project will, through local pilot activities based on the Homologue Approach, covering approximately 1.5 million hectares, test and demonstrate replicable ways in which rural farmers and communities can benefit from agro-biodiversity conservation in ways that also build their capacities to adapt to climate change. The project, in partnership with the National Biodiversity and Biosafety Centre, the UNDP Communities Programme, and the GEF Small Grants Programme, will feature three inter-linked complementary processes. The first focuses on strengthening existing policy and regulatory frameworks in support of agro-biodiversity conservation and adaptation to climate change, with emphasis on local level implementation. The second focuses on developing community, institutional, and system capacity to enable farmers and agencies to better adapt to climate risks through the conservation and use of agro-biodiversity. The third focuses on the development of agro-enterprises that support the conservation and production of agro-biodiversity friendly products, with a view to providing farmers and communities with alternative sources of income to offset the negative impacts and shocks related to climate change.

Acronyms and Abbreviations

ABD	Agro-biodiversity
ADB	Asian Development Bank
CBO	Community Based Organization
CC	Climate change
CBD	Convention on Biological Diversity
CEPF	Committee for Environmental Protection and Forestry
CIS	Commonwealth of Independent States
CO	Country Office
CP	(UNDP) Communities Programme
CPAP	Country Programme Action Plan
CTA	Chief Technical Adviser
DfID	United Kingdom Department for International Development
EBRD	European Bank for Reconstruction and Development
FAO	UN Food and Agriculture Organization
GDP	Gross Domestic Product
GEF	Global Environment Facility
GoT	Government of the Republic of Tajikistan
JDC	Jamoat Development Committee (now referred as JRC)
JRC	Jamoat Resource and Advocacy Center (former JDC)
km²	Square kilometer
LFA	Logical Framework Approach
masl	metres above sea level
MDG	Millennium Development Goals
MFI	Micro Financing Institution
MoA	Ministry of Agriculture
MWRLR	Ministry of Water Resources and Land Reclamation
NAP	National Action Plan
NBBC	National Biodiversity and Biosafety Center
NGO	Non-Governmental Organization
NPE	National Project Expert
NSAP	National Strategy and Action Plan (Conservation and Sustainable Use of Biodiversity)
PA	Project Assistance
PDF	Project Development Facility
PM	Project Manager
PRSP	Poverty Reduction Strategy Paper
PSC	Project Steering and Coordination Committee
RRDP	Rehabilitation, Reconstruction and Development Project
SCLMM	State Committee on Land Management
SDC	Swiss Agency for Development and Cooperation
SENAS	(EU/Tacis funded) “Support to the Establishment of a National Agricultural Advisory Service” project
SGP	(GEF) Small Grants Programme
UNDP	United Nations Development Programme
US$	United States dollar
WB	The World Bank

Glossary of Local Terms	
Dekhan	Farm
Hukumat	City (town) administration (executive body)
Jamoat	Village (*kishlak*) administration (executive body)
Kishlak	Village
kolkhoz	Collective farm
Majlis	Elected council (at various levels)
Majlisi Oli	National Assembly (Parliament)
Majlisi Milli	Upper chamber of National Assembly
Majlisi Namoyandagon	Lower chamber of National Assembly
Mahalla	Local community
oblast (region, viloyat)	Large administrative unit, equivalent of state or province
raion (district)	Small administrative unit, equivalent of county
Sovkhoz	State-owned farm
Tabiat	Nature

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PART 1: Situation Analysis

1.1 Context and global significance

1. Tajikistan is a small landlocked Central Asian republic of the former Soviet Union with a land area of 143,100 km². To the north lies the border with Kyrgyzstan (length 630 km), to the east with China (430 km), to the south with Afghanistan (1,030 km), and to the north and west with Uzbekistan (910 km). The Gorno-Badakhshan Autonomous *Oblast* occupies about 45% of the country. Tajikistan is a mountainous country with 72 peaks above 6,000 meters. The Tian Shan, Gissar-Alay and Pamir mountain systems cover about 93% of the country's land area. The altitude within the country varies from 300 to 7,495 meters above sea level and almost half the country lies above 3,000 m. The western third of the country is foothills and steppes. Lowland areas are confined to river valleys in the southwest and to the extreme north, where a small part of the territory extends into the fertile Fergana Valley. Due to the mountainous terrain, only 5% of Tajikistan's land area is cultivated. The climate is continental, with considerable seasonal and daily fluctuations in temperature and humidity. The complicated relief structure with huge variations in elevation creates unique local climates with great temperature differences. Precipitation depends on location and orientation of mountain ranges and on the air mass circulation. Mean annual precipitation in the hot deserts of southern Tajikistan and the cold high mountain deserts of the eastern Pamirs varies from 70 to 160 mm; while precipitation in central Tajikistan can exceed 2000 mm. Although July is the warmest month and January the coldest, mean annual air temperature varies widely from +6 to +17°C in the valleys and foothills to harsh mean annual temperatures close to 0 and rising +6 to +8°C at lower altitudes. Climate is particularly severe in the eastern Pamirs where mean annual air temperature ranges from -1 to -6°C and the coldest temperature ever recorded (-63°C) was at Bulunkul Lake.

2. Location, geography, and the natural resource base of Tajikistan thus shape the economy and society. The rugged extreme relief and sharply defined continental climate mean that population and economic activity are concentrated in the western low, broad valleys. Mountainous districts are among the poorest and are most vulnerable to natural disasters. Tajikistan has a population of just over seven million and the average population density is 45 persons per km2. Population density varies significantly according to the geographical area, and the lowlands of northern and western Tajikistan are the most densely populated. Presently, approximately 75% of the population live in rural areas and are entirely dependent on agriculture and forestry for their livelihoods, and so are dependent on natural resources. Tajikistan has been rebuilding its institutions, legal framework and economy since the end of its five-year civil war in 1997. Considerable attention has been given to reducing poverty, raising environmental awareness, halting land degradation, protecting biodiversity, and reducing energy consumption. Political instability, soaring inflation, and the "compound" 2007-8 winter fuel and food crisis1, however, threaten the long-term goal of structural reform and have led to public disillusionment.

3. The diverse climatic, geological and natural environmental conditions have led to a very rich biodiversity, best indicated by almost 9,800 plant species that have been recorded. Importantly, Central Asia, including Tajikistan, is a centre of origin for many species important to agriculture, and the country's agro-biodiversity is outstanding. This agro-biodiversity is found mostly between 500 and 3,500

[1] There has been discussion of a compound crisis in the Central Asian region comprising dropping water levels in reservoirs and associated power cuts and increases in power rates, decreasing industrial output, rising inflation, growing food insecurity, and declining wheat yields. Historically, these elements of crises have been offset by increasing areas under wheat production, high yields in Russia, more recent refilling of reservoirs, declining global food prices, and maintenance of high levels of remittances from Tajik workers in Russia (K. Udovicki, UN Assistant Secretary General Director, UNDP Regional Bureau for Europe & CIS, presentation October 2008 in Moscow).

metres above sea level (masl). Until recently, neither the wild nor on-farm biodiversity was threatened. Harvesting levels were below re-growth capacity, and other threats were limited. Since the break-up of the Soviet Union, however, a series of new threats have developed, and these are having rapidly damaging impacts on the ecosystems and agro-biodiversity. The principal threats are: tree cutting for fuel and construction materials; forest clearing to create agricultural land and pastures; over-harvesting of non-timber forest products and meadow species; overgrazing by livestock; conversion of pastures to agricultural land; disease and pests; and alien invasive species.

4. Historically the large number of on-farm varieties of crop plants helped to ensure that farm production remained constant despite harsh climates. The impacts of climate change, however, are already evident in Tajikistan and represent a serious threat to agro-biodiversity. As in the rest of the Northern Hemisphere, increased temperatures are generally affecting agricultural and forestry management at higher latitudes, "…such as earlier spring planting crops, and alterations in disturbance regimes of forests due to fires and pests" (IPCC, 2007). Of 106 datasets on physical systems for Asia, of which four were for Tajikistan, 96% show "…significant changes consistent with [global] warming"; of eight datasets on biological systems, one of which was from Tajikistan, all showed "significant changes consistent with [global] warming" (IPCC, 2007). Further, long-term instrumental observations show increasing climatic variability in Tajikistan. A succession of extremely hot and dry years followed by extreme cold is becoming a prominent feature of the climate. Precipitation estimates vary and have a high margin of error, due to complex mountainous topography. However, there is a slight (up to 8%) increase in precipitation in Tajikistan, mainly due to short episodes of extremely intensive rainfall (largely in the Fergana valley and Khujand region). Despite the high uncertainties, all scenarios predict that precipitation will become more intense and sporadic, leading to more frequent flood and drought periods. The cold winter of 2007-2008 and the severe droughts of 2000-1 and 2007-8 in Tajikistan are examples of this increasingly frequent natural hydro-metrological phenomenon with important consequences for the population and ecosystems. The exceptionally cold winter of 2008 afflicted much of Central Asia, but specifically in Tajikistan, it caused the breakdown of the national energy infrastructure, reduced winter crop yields and livestock herds. The widespread distress was recorded by the Government of Tajikistan, whose initial estimates of the damage to the economy of the country from the winter freeze of 2008 were US$1,000 million.

5. Recent droughts have also contributed to growing domestic food shortages. The country has a 20% food deficit, and even though grain production has increased, the need for imports was above 600,000 tons in 2002. Some of these quantities are supplied in food aid. The one million tons of wheat and 0.5 million tons of potatoes produced in 2007 were insufficient for the country's needs. Calorie intake is reported to have fallen from 2,615 kcal in 1985 to 1,528 kcal in 2003 (Asian Development Bank, 2005). Tajikistan is therefore particularly vulnerable to possible widening and deepening of the 'compound crisis' phenomenon that threatened water, energy and food security in the first quarter of 2008. These problems were exacerbated by global food and energy price trends, and subsequently by the onset of drought in the spring and summer across the region. Institutional mechanisms and support do not yet exist to cope with and/or adapt to climate change. Measures to confront climate change in the agriculture sector must be integrated into sectoral reforms at both the national and local levels.

6. In order to answer questions concerned with the influence of climate change on local farming systems, whether climate change will bring about irreversible changes in those farming systems and what adaptation measures may be needed in Tajikistan to reduce vulnerability, CIAT scientists (supporting the preparation of this proposal) simulated the influence of climate change on three cereal food staples, barley, wheat, and rice. They extracted the IPCC data for 18 GCMs and provided mean data for the likely mean climates in 2050. Simulating the effects of the changed climates on the crops that are currently grown, they did a pilot study for three sites in the Zeravshan Valley to indicate what the likely outcomes will be. They compared the climate for three sites in the Zerafshan Valley: Oburdan, 39° 24' 1" N, 69° 5' 0" E, 1930 meters above sea level (masl); Khishkat, 39° 25' 0" N, 68° 30' 4" E, 1440 masl; and

Pendzhikent, 39° 30’ 1” N, 67° 36’ 0” E, 990 masl. They extracted data for the current climate and for 2050 as estimated by the GCMs. They subsequently generated 99 years’ data for each scenario (now and 2050) and input these data into the Decision Support System for Agro-technology Transfer (DSSAT) models for wheat, barley and rice (rice only for the Pendzhikent site) to simulate crop yields without fertilizer and with a modest application of N and P, on three generic soils.

7. Their results suggested that yields of wheat and barley will fall by about 10%, which can probably be overcome by plant breeding in the next 40 years, or even by using varieties that have different physiological response functions, such as slower phenological development and different flowering triggers. Also broadly, the coping strategies that will be used in 2050 will be those currently used by farmers further down (lower) in the landscape, for example in 2050, Khishkat at 1440m altitude will have a climate similar to what Pendzhikent currently has at 990m altitude.

8. It was not possible, however, to extrapolate from simulations of barley, wheat and rice, the latter grown under irrigation, to how perennial fruits, nuts, and vegetables will fare under climate change. The data nevertheless suggest that the agronomic and physiological problems may not be especially pressing, as temperature increases may in fact benefit some agro-biodiversity (i.e. the simplified response of the perennials may be the movement of some species uphill). The major problems may be institutional and economic; the latter implying that conservation of wild germplasm is a less pressing concern to someone without fuel to heat their house or to cook than addressing those immediate needs. While the economic pressures described above have and are resulting in overexploitation and degradation of the resource base (especially overexploitation of fragile or erodable soils and fuel wood harvesting), and while local communities will face challenges brought about through climate change (including possible losses in staple crop production and livestock), it is clear that agro-biodiversity may represent one of the only opportunities to maintain and improve local livelihoods in the face of current and future threats. At present rates, however, these threats will quickly remove agro-biodiversity and natural ecosystems, will undermine long-term economic activities dependent on biodiversity, and will preclude development of new biodiversity-based economic activities.

9. As a result of these findings, the project will concentrate on the conservation *in situ* of perennial germplasm and understanding the impact of climate variability by using the Homologue Approach, where the climates that will be encountered in 2050 already exist at lower altitudes. The project will select sites using an environmental agro-climatic model such that sites will be paired with their year 2050 homologues. For each village selected, another village will be chosen to represent its year 2050 climatic homologue. For example, by interpolation on the data of the 18 global circulation models, the temperatures of Khishkat, in the Zeravshan Valley in central-west Tajikistan, will increase by about 3 degrees by 2050. The adiabatic lapse rate is 6°C per 1000 m, so a site 500 m lower than Khishkat today has a temperature climate the same that Khishkat will have in 2050. That is, Khishkat at 1440 m altitude will have roughly the same temperature regime that Pendzhikent, at 990 m altitude, has today. A census on varieties growing at Pendzhikent will show what adaptation will be required at Khishkat over the next 40 years. The Homologue approach can be applied to determine which present day communities will be like our selected communities in 50 years time in the face of climate change. Those identified communities and farmers would then also get to see and gradually prepare for their futures in terms of agro-biodiversity. Germplasm maintenance and exchange will allow farmers to gradually adapt to new conditions via the introduction of cultivars from homologous sites. People from, for example, site 1a will be able to visit and learn from site 1b, which will represent conditions at site 1a in the year 2050. The 18 GCMs provide best bet estimates of how climate will change at the selected sites. The visitors will see their own futures; they will learn what they will and will not be able to grow; they will be able to see if conditions are the same, worse, or better, and in which ways, and establish what they will have as options in terms of agro-biodiversity. Over the next decades, they will be able to obtain the germplasm that they will gradually need more and more. Forewarned through the project use of Homologue Approach, farmers and communities will be forearmed. Under the Homologue Approach, the initially selected communities

can also "donate" to the future; and in so doing conserve their present agro-biodiversity by improving the futures of their own as well as other communities. As a result of the application of the Homologue Approach, it is anticipated that long-term adaptive measures will include effective policy implementation for the conservation of agro-biodiversity, capacity building for improved resources and agricultural management, and for management, largely *in situ,* of genetic resources. A project emphasis on agro-enterprise development (both nationally and internationally and perhaps in the area of certified organic fair-trade fruit and nut products) will seek to increase farmers' financial returns and ensure meaningful community based participation. These measures are described below.

10. The final decision on the concrete project sites will be made on initiation of the project (within the first year of implementation). Sites will be selected using the Homologue Approach developed by CIAT and will be selected to represent present and future (year 2050) scenarios using agro-climatic variables (homologues) combined with Global Climate Models. Sites first selected will be communities having substantial agro-biodiversity; while matching sites will represent the same sites in 2050 in terms of soils and climate. Sites will also have a *Jamoat* Resource Centre, supported by the UNDP Communities Programme. UNDP has area offices in Khatlon and in the Rasht and Zeravshan Valleys. The specific project sites will be located within these overall territories. It is envisaged that the project will impact an area of 1.5 million hectares in a productive landscape covering four districts (Shurobod, Rasht, Baljuan and Zerafshan) and 36 sub-districts (*Jamoats*) with a total population of approximately 152,000. All the proposed areas for implementation of the project are economically and geographically remote, are located at different altitudes, and are characterized by different local climatic, agricultural, socio-economic, and demographic conditions. The project area consists of small villages nestled amongst hills and high mountains. A typical village will have a population of 300-500. Typically, 5 to 10 villages are collected administratively under a *Jamoat* government. Most farmers in the villages are involved in a range of integrated natural resource management and agricultural activities, including farming of annual crops on small areas of mostly rain-fed land near the village; fruit and nut farming in small orchards in or near the village; collection of fruits, nuts, berries and wild plants from forests; wood extraction for fuel and construction from orchards and forests; open livestock grazing in forests, rangeland, and pastures.[2] Through local pilot activities, the project will develop and test replicable ways in which farmers and rural communities can conserve and use agro-biodiversity in ways that improve livelihoods and build capacities to adapt to climate change.

11. Through a series of coordinated and complementary actions, the project, in partnership with the National Biodiversity and Biosafety Centre, the UNDP Communities Programme and the GEF Small Grants Programme, will demonstrate three inter-linked processes. Specifically: the first focuses on strengthening existing policy and regulatory frameworks in support of agro-biodiversity conservation and adaptation to climate change, with emphasis on implementation at the local level. The second focuses on developing community, institutional and system capacity to enable farmers and agencies to address climate risks through the conservation and use of agro-biodiversity. The third focuses on the development of agro-enterprises that support the conservation and production of agro-biodiversity friendly products, with a view to providing farmers and communities with alternative sources of income to offset the negative impacts and shocks related to climate change.

12. In terms of measurable global environmental benefits, the collection, characterization, and *ex situ* storage and *in situ* conservation of agro-biodiversity will make genetic material[3] available to global crop improvement programs, resulting in better crop adaptation in the face of biotic and abiotic stresses – including those related to climate change. The conserved agro-biodiversity and its potential for global crop improvement in the face of climate change thus comprise the project's Global Environmental

[2] Points (ii) to (v) take place on state-owned and state-managed land.

[3] See Globally_Significant_ABD_in_Tajikistan for full details of globally significant agro-biodiversity to be conserved.

Benefit. Tajikistan may or may not reap immediate financial and economic benefits from such conservation; and as such, the GEF funding will provide the incremental support needed to achieve the desired impact in terms of global environmental benefits. Further, by removing barriers to mainstreaming agro-biodiversity conservation and sustainable use, the project will ensure that agro-biodiversity is better protected, and that Tajikistan and the wider global community maintain the 'option values' for future agro-biodiversity use that would otherwise be lost under current circumstances. The resulting socio-ecological resilience will be a critical contribution to assuring food security and provide the basis for capacities and strategies to cope with predicted climate change. The conservation of crop wild relatives also provides a unique challenge. Wild relatives mostly occur in non-agricultural ecosystems or as weeds on agricultural land. While wild relatives have historically contributed to the immense present-day value of agricultural crops, they typically have no current commercial value and cannot generate direct financial incentives for conservation. Under conditions of global climate change, crop breeders will need to produce new varieties adapted to new and greater environmental stresses. Wild relatives are likely to contain the genetic characteristics needed to adapt crops to such future conditions.

Socio-economic context

13. Tajikistan gained independence from the Soviet Union in 1991. It was one of the most rural and poorest Soviet states and was heavily reliant on other states for technical and financial resources. Following independence, Tajikistan descended into a damaging civil war that further added to the country's poverty and other challenges. Since the late 1990's, however, Tajikistan has become one of the few post-conflict countries to move quickly from war to internal stability. It has since achieved some remarkable economic success with growth of about 10% per year in each of the past four years.

14. Despite these achievements, Tajikistan is the poorest of the CIS countries with an estimated gross per capita income of US$ 460 (World Bank, 2007). In 2005, the UNDP Human Development Index ranked Tajikistan as 122nd of 177 countries. The 2004 World Bank Poverty Assessment found that 83% of the population of 7 million[4] live in poverty, while 50% are very poor or extremely poor. Poverty is generally worse in rural compared to urban areas. Mountainous districts are among the worst affected by poverty and are the most vulnerable to natural disasters. Poverty forces the population to actively use land resources, to graze on highly valuable pasturelands on mountain slopes, to cut trees and to hunt illegally. They get a small income by gathering medicinal plants, fruits and nuts.

15. Two thirds of the rural population now relies on subsistence production on household plots, providing an estimated 50% of total household income in kind and in cash. Another important source of household income is remittances from abroad. The shortage of jobs in Tajikistan and the low wages have forced many people to seek both seasonal and permanent work abroad. A poverty reduction monitoring survey, conducted by the Government in cooperation with the Asian Development Bank (ADB) in 2002, revealed that 17.2% of the surveyed households had family members holding jobs outside the country during the preceding 12 months. According to the Economist Intelligence Unit (EIU), remittances from abroad could amount to between 40% and 75% of Tajik GDP. Following a 50% increase in remittances for the whole of 2008 compared to 2007 (2008 = over US$ billion), IMF projects a decrease by 30% in 2009 due to impact of global financial and economic downturn in Russia. Remittances in January 2009 totaled USD 96 million, which is 22% less compared to January 2008, and a decrease of 50% compared with December 2008. In 2008, remittances made up 45% of the country's GDP, thus a decrease in the volume of remittances will have serious impact on Tajikistan's economy this year.

16. Following the break-up of the Soviet Union, and the subsequent civil war, three key factors have had an impact on the socio-economy in the region:

- *Economic hardship.* A high level of unemployment and loss of the social security net meant that large numbers of people suddenly found themselves facing extreme poverty and hunger. The only solution

[4] Population density is approximately 45 persons per km².

was to turn to natural resources for food, fodder, construction material, energy, and medicine. Such resource use has greatly increased over the past decade.

- *Land privatization.* Agricultural and pasture land surrounding villages has been 'privatised'5, generally leading to small land plots. Forest land is still state-owned, however, meaning local people lack direct incentives to protect forests.
- *Emigration.* The shortage of jobs in Tajikistan and low wages has forced many people to seek both seasonal and permanent work abroad, mostly in Russia.

17. Two thirds of the rural population now relies on household plots that provide an estimated 50% of total household income in kind and in cash. Nearly all households have access to a small plot (ranging from 0.1 to 4 hectares). In 1996-1998, 75,000 hectares were distributed in small plots by presidential decree. Total acreage of household plots is 125,000 hectares, 60% of which are irrigated. Most households own livestock. Unfortunately, many are post-Soviet farmers not familiar with sustainable natural resource management practices; and many in irrigated areas are forced to grow cotton to the exclusion of other crops through a complex system of debts and obligations managed by the government.

18. Most production in rain-fed areas is for household use or for barter with neighbours. The farm economy is thus mostly a 'subsistence economy' that includes collection of wood and wild plants, and the grazing of sheep. Although a small percentage of production is traded over larger distances, the marketing structure is very primitive compared to other parts of the former Soviet Union. Farmers are largely unaware as to how to sell products to distant markets and gain premium prices in market chains.

Environmental context

19. Tajikistan is a storehouse of globally important agro-biodiversity[6] (Table 1). According to the famous Russian geneticist, N. Vavilov, the country represents one of the centers of origin for cultivated plants worldwide. Diverse climatic, geological, and environmental conditions led to such biodiversity, indicated by the 9,771 plant species, recorded in Tajikistan. The main ecosystems sheltering globally significant agro-biodiversity are in the mountainous areas (93% of the country) and are represented by: (i) xerophytic light forest ecosystems dominated by pistachio, almonds, wormwood, and wild relatives of barley, vetch, almond, persimmon, pomegranates, and grapes; (ii) mesophytic forest ecosystems dominated by maple, walnut, willow and birch and containing wild relatives of apple, pear, cherry, and plum; and (iii) agro-ecosystems – represented by small scale farms and orchards growing local varieties of fruit, vegetables, melons, cereals and forage.

Table 1. The main components of biodiversity in Tajikistan

No.	Composition	Number
1	Ecosystems	12 types
2	Types of vegetation	20 types
3	Flora	9,771 species
4	Wild relatives of cultivated plants	1,000 species
5	Endemic plants	1,132 species
6	Plants listed in the Red Data Book of Tajikistan	226 species
7	Fauna	13,531 species
8	Endemic fauna	800 species
9	Animals listed in the Red Data Book of Tajikistan	162 species

[5] Farmers have obtained long term rights to use the land, but these rights are not easily transferable. They are also precarious and can be removed rather easily.

[6] Globally significant is determined in terms of: species commercially important to man; wild varieties likely to have diverse and unique properties (such as resistance to extreme climate, or to disease); wild varieties growing at or near to their center of origin; and endemic farm varieties and breeds likely to have diverse and unique characteristics properties. Also, the diverse ecosystems and rapid changes in habitat add to the global uniqueness of many sites.

10	Agricultural crops	500 varieties
11	Domestic animals	30 breeds

Source: Tajikistan National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity, 2003.

20. The agro-biodiversity of Tajikistan has been commonly described in terms of 1,550 varieties or cultivars of fruit and berries (e.g., apple, pear, apricot), 463 vegetables and melons (e.g., onion, carrot, garlic and watermelon); 46 cereals, 39 food legumes (e.g., peas and lentils), and 39 forages; and some 1,850 varieties of ornamental plants (such as tulips, narcissus and iris). Tajikistan is home to the genetic base for numerous traditional crops, including barley (two types: *Hordeum bulbosum* and *H. brevisubulatum*), chickpea (three types: *Cicer baldshuanicum*, *C. songoricum*, and *C. chorosanicum*), apple (two types: *Mallus sieversii* and *M. semenovii*), pear (two types), onion (30 types), pomegranate (one type), almond (one type), and currant (eight types). Perhaps 1,880 varieties or cultivars of global significance are found in Tajikistan. Many of these provide food for local peoples, forage, industrial products, medicines, and ornamentation. Local landraces and wild relatives undoubtedly contain valuable genetic adaptations to difficult environments.

21. Information from the Global Biodiversity Information Facility (www.gbif.org.) regarding collections of the 11 fruit and nut genera *Amygdalus, Ficus, Hippophae, Juglans, Malus, Persica, Pistacia, Prunus, Punica, Pyrus,* and *Vitis* has indicated that there are 167 collections, of which only 26 are germplasm (24 apples, one pear and one pistachio) and six are specimens (five held by Missouri Botanic Garden and the other by the Berlin Botanic Garden). The basis of the remaining 135 is unknown. Searches were done for Tajikistan and each genus name for each of the 11 genera (Table 2).

Table 2. Summary of data extracted from the Global Biodiversity Information Facility for the fruit and nut genera *Amygdalus, Ficus, Hippophae, Juglans, Malus, Persica, Pistacia, Prunus, Punica, Pyrus,* and *Vitis* collected in Tajikistan.

Common name	Specific name	Number of collections and basis of the records	Provider/collector
Almond	*Amygdalus communis*	3 collections, specimens	Missouri Botanic Garden
Alycha	*Prunus cerasifera*	1 *Cerasus avium*, unknown 1 *C. vulgaris*, unknown 22 *C. mahaleb*, unknown	European Genetic Resources (all RUS001)
Apple	*Malus domestica*, *Malus* sp.	24 collections, germplasm	USA167
Apricot	*Prunus armeniaca* syn. *Armeniaca vulgaris*	59 collections, unknown	European Genetic Resources (RUS001)
Fig	*Ficus carica*	1 collection, unknown	European Genetic Resources (RUS001)
Grape	*Vitis vinifera, Vitis* sp.	51 collections, unknown	European Genetic Resources (3 AZE007, 5 ROM017, 42 UKR050, 1 DEU098)
Peach	*Persica vulgaris*	5 collections, unknown	European Genetic Resources (4 RUS001, 1 UKR046)
		2 collections under *Prunus*, unknown	European Genetic Resources (UKR046, UKR036)
Pear	*Pyrus communis, Pyrus* sp.	1 collection, germplasm 2 collections, unknown	USA206 European Genetic Resources (RUS001)

Common name	Specific name	Number of collections and basis of the records	Provider/collector
Plum	*Prunus domestica*	1 *P. verrucosa*, specimen	Missouri Botanic Garden
		1 *P. sogdiana*, specimen	Berlin Botanic Garden
Pistachio	*Pistacia vera*	1 collection, germplasm	USA390
Pomegranate	*Punica granatum*	1 collection, unknown	European Genetic Resources (AZE009)
Sea buckthorn	*Hippophae* sp.	1 collection, specimen	Missouri Botanic Garden
Walnut	*Juglans regia*	None	

22. This suggests that the agro-biodiversity of genera other than those from the families Poaceae and Fabaceae are poorly collected and characterized. Most of the unknown material is from RUS001 (Table 3). It is unclear whether the above-listed are accessions, varieties, cultivars or species, when they were collected, and the state of collection; that is, whether they are botanic (herbarium) specimens, germplasm collected for characterization, or germplasm maintained *ex situ*. As a result, there is no comprehensive data on the status of agro-biodiversity in Tajikistan, including project-important families such as Prunaceae[7]. On the other hand, the families Poaceae and Fabaceae, which include most of the cereals grains and pulse crops grown for food, have been adequately collected by the Consultative Group on International Agricultural Research (CGIAR) Centers and national bodies such as the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) and US Department of Agriculture (USDA) for use in their crop breeding programmes, so that the conservation of their germplasm is assured.

23. During the past few years, some specialized expeditions in Tajikistan have collected landraces and close wild relatives of agricultural crops such as cereals and vegetables (mainly of the family Cucurbitaceae) to complement the existing collections of this germplasm. A small plant genetic resources unit has been established in Dushanbe and a modest seed storage facility is being constructed with donor money. Many of the other collections, principally in the N.I. Vavilov All-Russian Scientific Research Institute of Plant Industry in St. Petersburg and to a lesser extent in other research institutes, appear to be represented only as herbarium specimens and moreover do not appear in the Food & Agriculture Organization catalogue. Although outside the scope of this project, there is considerable information about species distribution that can be extracted from data regarding where the specimens were collected (currently unavailable) and which would be very useful to guide this and other projects in selection of appropriate sites. It is surprising that there have been no botanical collecting expeditions since Vavilov before the Russian revolution.

Table 3. Location of the Institutes by their Plant Genetic Resources for Food and Agriculture
http://apps3.fao.org/wiews/wiews.jsp

Code	Institute	Address	Country
AZE007	Azerbaijan Research Institute for Viticulture and Winemaking	0100 Baku	AZERBAIJAN
AZE009	The Scientific Research Institute of Horticulture and Subtropical Plants	Zardaby settlement, Guba, 373171	AZERBAIJAN
DEU098	Julius Kühn-Institut Bundesforschungsinstitut für Kulturpflanzen (JKI) Institut für Rebenzüchtung Geilweilerhof	D-76833 Siebeldingen	GERMANY
ROM017	Wine Growing Research Institute Valea	2040 Prahova	ROMANIA

[7] It is therefore impossible to formulate fully satisfactory baselines in advance of the proposed project. A key component in the first year of the project will be to inventory the target species in the selected project sites so that there will be adequate local baselines to serve as project indicators.

Code	Institute	Address	Country
	Calugareasca		
RUS001	N.I.Vavilov All-Russian Scientific Research Institute of Plant Industry	St. Petersburg 190000	RUSSIA
UKR036	State Nikitskyi Botanical Garden	sv. Botanicheskoye, Yalta, Crimea	UKRAINE
UKR046	Crimean Pomological Station	Vavilova, Sevastopol Crimea Region	UKRAINE
UKR050	Nacional Institute of Vine and Wine "Magarach"	986000 Yalta, Crimea	UKRAINE
USA167	Plant Genetic Resources Unit, Cornell University, New York State Agricultural Experiment Station, USDA, ARS	Geneva, NY 14456	USA
USA206	Horticulture Department, Colorado State University	Fort Collins, CO 80523	USA
USA390	Botany Department, University of California	Davis, CA 95616	USA

24. In contrast to the listed collections, however, the present project is more concerned with the fruits and nuts cultivated in home gardens, and orchards, and found wild in forests. It is likely that many are recalcitrant – unable to be stored and maintained *ex situ*[8]. Fruit genotype collections set up during the Soviet period are deteriorating.

25. Nearly half of crops cultivated in home gardens (known locally as farms) in Tajikistan are local varieties. Many of the landraces and their wild relatives house resistances and tolerances to pests and diseases, and to abiotic stresses. As such, they constitute a valuable source of genetic material for future germplasm enhancement programmes around the world. Tajikistan's agricultural biodiversity is not only of importance to the livelihoods of rural communities, to the local economy, and to local long-term food security, but also to global food security, particularly in light of the challenges of global climate change. Local populations use or consume wild products such as construction materials, dyes, berries (sea buckthorn, barberries, currants, raspberries and haws), mushrooms, nuts and fruits and dozens of medicinal plant species. Conservation of these genetic resources is thus a strategic priority of the national government and the global community. There are, however, significant gaps at the national level in crop improvement, pathology, agronomy, entomology, weed sciences, ecology, and even biotechnology. Such

[8] Conventionally, much germplasm is conserved *ex situ*, that is, at some place other than where it was collected. Typically, the material is collected as seed, taken to the *ex situ* site where the plants are grown to maturity from the collected seed. During growth, the plants are thoroughly characterized and finally more seed is collected and stored at low temperatures and low humidity in special facilities. Periodically the stored seed is checked for viability and, less frequently, the seed is grown out to ensure that there is always a sufficient reserve of seed available. Germplasm conservation specialists have developed protocols for what constitutes "a sufficient reserve" and the frequency of the growing out cycle. Some species are not amenable to this process, usually because their seed does not remain viable in cold storage for a sufficiently long period of time. In these cases, there is no alternative either to conservation using tissue culture, conservation as specimens as in a botanic garden or specialized conservation nursery, or *in situ* conservation. Tissue culture requires skilled technicians and specialized facilities and is therefore costly. Botanic gardens or specialized nurseries also require skilled practitioners (gardeners), sufficient land, and still are not cheap to maintain. True *in situ* conservation means the protection of plants where they grow, in the form of "working conservation". All three require institutional commitment; in the case of tissue culture and botanic gardens/specialized nurseries, and the funding to operate, which may be difficult in times of financial hardship. *In situ* conservation requires a different institutional commitment, in the form of legal instruments to create the necessary protected status and the resources to enforce that status. They are always vulnerable to neglect in times of financial difficulty or plunder in times of social disorder.

capacities will be needed as Tajikistan faces the challenge of adapting its agricultural sector to eminent climate change impacts[9].

Policy and legislative context

26. Following the collapse of the former Soviet Union, Tajikistan had virtually no choice but to adopt a long-term development policy aimed at establishing a democratic and capitalist state based on the free market system. However, in the initial period, most Central Asian states were too preoccupied with staving off total economic and civil disintegration to be able to pursue targeted policies towards this goal. In the case of Tajikistan, such efforts had limited success as internal political conflicts degenerated into civil war. Fortunately – although the war was costly in terms of life, economy, and environment – stability was fairly rapidly restored. Since 1996-97, both the economy and the capacity to govern have gradually grown, as have capacities to develop and implement policies supporting long-term development goals.

27. *At the international level,* Tajikistan is a party to the Convention on Biodiversity Conservation (1997), the Framework Convention on Climate Change (1998), and to other related international treaties, such as the Convention on the Conservation of Migratory Species of Wild Animals (CMS) (1997); the Convention to Combat Desertification (1997); and the Convention on Wetlands (2000). Tajikistan is a party to the Treaty on the Cooperation in the Field of Ecology and Protection of Environment, an agreement of the Commonwealth of Independent States (CIS) countries, which entered into force in February 1992. It is also a party to the Treaty on Collaboration in the field of Conservation and Use of Cultivated Plant Genetic Resources, also an agreement among the CIS countries (1999).

28. *At the national level,* the basic elements of the legal and regulatory framework relating to the use of land resources and agriculture are:

- Legal Acts (the Constitution, the Land Law, the criminal code, the civil code, the administrative code, and the Law on Wildlife Management).
- Regulatory instruments (presidential decrees and government decisions).
- Agreements under international conventions.

29. The **Tajik Constitution** fundamentally limits the scope of land privatization because "the land and its natural resources are the exclusive property of the State and the State guarantees their efficient use in the interests of the people". Since independence, this policy has been qualified by a series of laws and decrees. Land use is now regulated by no fewer than nine different laws, including the Civil Code, the Land Leasing Law, the Land Law (Code), the Land Reform Code, the Law on Property, the Law on State Property, the Law on Local Land and the Law on *Dekhan* Farms. The aim of these laws is to transform the old collectivized agriculture comprising 500 large *kolkhoz* and *sovhoz* into a more responsive and efficient sector by creating new forms of farm enterprises supported by the right to lease land. By 2004, a total of about 13,500 entities had been created of which 10,600 were individual *dekhan* farms and another 2,100 *dekhan* "farm groupings" (essentially *kolkhoz* under another name).

30. From the government's point of view, the reform process has been mostly completed. In practice, however, there are a significant number of unresolved problems, including superficial change (as in the case of the "farm groupings") and absence of attributes that would provide the incentive to invest in sustainable husbandry of land (e.g., length of the lease, adequate legal protection). In addition, efforts to

[9] Tajikistan's past strategy for conserving biodiversity relied on protected areas, which constitute 22% of total area. Over the past few years, there has been a strong shift to encompass agricultural landscapes. The National Action Plan and Report on Building Capacity to Implement Commitments on Global Environmental Conventions (an output of the National Capacity Self Assessment, NCSA), recognises the importance of restoring degraded agro-ecosystems and supports the application of traditional methods of agro-biodiversity conservation and its rational use. The document prioritizes the need for the improvement of the legislative base for the implementation of policy on agro-biodiversity, with a particular focus on the effective *implementation* of existing legislation at the local level.

support *dekhan* farmers in the irrigated areas to take responsibility for sustainable land management has been inadequate, with limited technical training, an absence of cooperative mechanisms to allow effective maintenance of irrigation systems and economies of scale, inadequate credit facilities and development of structures to equitably provide farm inputs and sales. A major and intractable debt problem has developed with private creditors (so-called "futures companies") filling the credit gap. Almost all farms in the irrigated areas are heavily in debt. This situation is compounded by the fact that creditors use this indebtedness to dictate terms in regard to farm inputs, cotton processing and sales, so deepening the debt and dependence. In effect, many irrigated farmers have become bonded producers.

31. National priorities relating to the conservation of agro-biodiversity and adaptation to climate change are laid out in the inter-connected draft **Poverty Reduction Strategy Paper (PRS) for 2007-2009 and National Development Strategy (NDS) for the period up to 2015**. These national development planning documents set out that agricultural production and natural resources will be the backbone of economic development and poverty reduction over the coming decade. Specifically, these documents target environmentally-sustainable development, including the need to promote the conservation and proper management of biodiversity and ecosystems and measures to promote adaptation to climate change. These policies call for the development of multi-sectoral plans for food security and the increased production and export of agricultural goods, balanced by efforts to preserve the gene pool of domestic and wild animals, plants and crops in the face of climate change. Other relevant government-led programmes include the Economic Development Plan for Tajikistan for the period to 2015 and the Public Investment, Grants and Technical Assistance Programme (PGI) for 2007-2009.

32. The proposed project supports the following national policies and plans relating to agro-biodiversity conservation and adaptation to climate change:

- The State Ecological Programme for 1998-2008 (1997)
- National Strategy and Action Plan for Biodiversity Conservation (NBSAP, 2003)
- National Environmental Action Plan (NEAP, 2006)
- National Action Plan of the Republic of Tajikistan on Climate Change Mitigation (NAP, 2003)
- National Action Plan and Report on Building Capacity to Implement Commitments on Global Environment Conventions (2005)
- Third National Report on Biodiversity Conservation in Tajikistan (2006)
- The State Programme on Protected Areas Development (2006) and the Law on Specially Protected Territories (2002)
- Law on Nature Protection.

33. **The State Ecological Programme** (1998–2008) targets the development of environmentally sustainable technologies to prevent erosion and other negative influences on biodiversity (including agro-biodiversity). It has also contributed to improving the awareness of the governmental decision-makers on biodiversity conservation issues, and intends similar awareness raising among the wider population. The programme promotes the harmonization of economic activities with biodiversity issues in Tajikistan.

34. **The National Strategy and Action Plan for Biodiversity Conservation** (NBSAP, 2003) and the **National Environmental Action Plan** (2006) define the priorities and directions for work on the sustainable use and conservation of biodiversity. These policies place emphasis on the sustainable use of agrobiodiversity.

35. The **National Action Plan on Climate Change Mitigation** (NAP), prepared as part of the First National Communication on Climate Change project, which was GEF funded, defines the priorities and directions of future activities in the field of climate change. The NAP includes the Strategy of Adapation to Climate Change, and the Prevention and Minimization of Its Adverse Effects. The Second National Communication, currently in draft, confirms that the vulnerability of natural resources, the national economy and public health in the face of climate change warrant appropriate adaptation measures to

ensure that the negative effects of climate change are met. The NAP underlines that agriculture is the major sector of Tajikistan's economy, with the resulting national reliance on, and vulnerability to, natural and climatic extremes. It thus calls for appropriate adaptation measures to ensure sustainable farming and the introduction of new technologies and methods of agriculture to adapt to climate change and ensure food security.

36. **The National Action Plan and Report on Building Capacity to Implement Commitments on Global Environmental Conventions** is a result of the GEF National Capacity Self Assessment (NCSA) process in Tajikistan. This document recognises the importance of restoring degraded agro-ecosystems according to their previous structure. It also supports the application of traditional methods of agro-biodiversity conservation and its rational use. It also identifies agriculture as the priority sector for adaptation measures and technologies. The following adaptation measures are suggested: (i) Reduce the prospective risk of negative impacts; (ii) Increase the adaptation capacity required to reduce the vulnerability of the poor population residing in rural areas; (iii) Increase the adaptation capacity of natural resources and those national economy sectors closely dependent on the environmental situation; and (iv) Implement planned measures aimed at the reduction of loss of and damage to agricultural crops. In terms of agro-biodiversity, the document outlines the need for the improvement of the legislative base for the implementation of government policy in relation to agro-biodiversity.

37. **The State Programme on the Development of Specially Protected Areas** (2006) and the **Law on Specially Protected Territories** (2002) were designed to ensure the conservation of rare and unique species and ecosystems. The Law and Programme encourage the development of protected areas to help manage natural resources. The Programme was approved by the government and recommended for implementation by all stakeholders.

38. The project is also informed by the **Third National Report on Biodiversity Conservation in Tajikistan** (2006), which underlines the loss of national biodiversity in recent years, indicated by the increasing rarity of particular plant and animal species. The changes have not been accurately measured or recorded in recent years, however, so the degree of the problem is not precisely defined. The Report also recognises that the country has few genetic collections of cereals and wild plant species, and calls for the rehabilitation and conservation of the gene pool of flora and fauna. The Report calls for the establishment of a National Centre for Genetic Resources and an informational database of genetic resources.

39. The project is consistent with the **Initial National Communication on Climate Change in Tajikistan,** which identifies agriculture and local food production as important priorities. The National Communication states that crop losses caused by climatic factors are much higher than those caused by anthropogenic factors and other non-meteorological phenomena. For example, as a result of droughts in early 2000s, low precipitation levels and reduced snow stock, the cereal yield reduced by 10-30%, in comparison with previous years. Heavy rainfalls and other extreme weather events in 2002 resulted in significant damage to the agriculture, estimated at tens of millions of dollars. The **Second National Communication on Climate Change** (due to be released in December 2008) is currently developing a detailed account of this priority and will contribute to this project by providing the adaptation baseline analysis.

40. The **Law on Nature Protection**, Tajikistan's first post-Soviet Law on Nature Protection (LNP), dates from 1993. It was amended in 1997 and 2002. The Law assigns responsibilities to "specially authorized state bodies of the Republic of Tajikistan", in practice the Committee for Environmental protection and Forestry (SCEPF), and oblast, rayon and city environmental committees.

41. The project will also contribute to meeting the objectives of the following national legislation on biodiversity conservation, climate change and development:

- The Law on Environmental Protection (1993);

- The Law on Protection and Use of Flora (2004);
- The Law on Ecological Expertise (2003);
- The State Program on Forestry Development (2006-2015) and the Forestry Code (1993); and
- The Law on Hydrometreological Activity.

42. These laws outline the state policies on nature protection, the promotion of agro-biodiversity, the mitigation of climate change and the promotion of adaptation measures in the field of agro-biodiversity. They promote both investment in the agro-biodiversity sector (including adaptation measures in the sector) and cooperation with international agencies and organizations, which are all considered essential to improving the situation in Tajikistan's biodiversity and climate change sectors. Specific reference is made to the development of a proper system for the management of agro-ecosystems and biodiversity conservation, and to the need for the development of a proper system for climate change mitigation (including adaptation measures). A number of additional laws, including the Law on Environmental Impact Assessment, are under preparation.

43. Some fifty environment-related implementing decrees and decisions have been issued since 1992, addressing a variety of environment-related subjects, including some that relate to land management, Tajikistan's participation in international environmental conventions, regional environmental cooperation, setting up of specialized committees (e.g. National Sustainable Development Committee) and others.

Institutional context

44. Tajikistan follows the principle of separation of State power into three branches: the legislative, the executive and the judiciary. Accordingly, the legislative branch has the key role in defining the policies, strategies and rules for the environment and nature protection, which it exercises by passing laws. The executive branch, represented by the President and the Government, also has a significant role in setting the rules, as the Government is authorized to implement legislation, which establishes specific requirements. Also, the role of the executive in enforcing environmental legislation is extremely important in that all local (*oblast*, city and *raion*) divisions of the Committee for Environmental Protection and Forestry are also subordinated to the *hukumat*s, which are the local divisions of the executive (the principle of double subordination).

45. The Government approves the regulations of the ministries and committees and determines the structure of their central administration, including the Committee for Environmental Protection and Forestry, and is responsible for the coordination of their work and inter-agency cooperation. Additionally, the Government:

- Formulates uniform State policies on nature use, environmental protection and ecological safety;
- Takes measures to ensure individual rights to a healthy environment and ecological safety;
- Coordinates the joint activities of State executive bodies to protect nature and implement State-wide and intergovernmental regional ecological programmes, to prevent natural and man-made (or technogenic) disasters and eliminate their consequences; and
- Organizes the protection and sustainable use of natural resources, for instance by regulating natural resource use.

46. At the national level, there are two ministries and two committees, which are key to the management of land resources and prevention of land degradation. The Ministries are the Ministry of Water Resources and Land Reclamation (MWRLR); and the Ministry of Agriculture (MoA). Besides a general responsibility for the "development of agriculture" and for meeting the nation's food requirements, the charter of the MoA makes it responsible for the efficiency of land use and the maintenance of land quality. The Ministry has about 60 departments, sections and subordinate institutions. The main concerns of the Ministry have been a Five-Year Plan for Grains Development and interim Plans for Agricultural Production. Under the first, wheat production was to increase to 1 million tons in 2005 (the actual output in 2004 was 892,000 tons). The focus of the 2000-2003 Interim Plan was

to increase annual seed cotton production to 700,000 tons by 2004 (the actual production was 557,000 tons). Three departments dominate: Economics, Technical Crops, and Grains and Food Crops. The traditional function of these departments has been to prepare production schedules for oblasts and rayons. The attempts by the Ministry to control production by "transformed" farms remains a key policy issue. Subordinated to MoA are (among others) the Tajik Academy of Agricultural Science and the Tajik Agricultural University.

47. The Ministry of Nature Protection was abolished by presidential decree in 2004 and replaced by the Committee for Environmental Protection and Forestry (SCEPF). The SCEPF's Regulations were approved by governmental resolution in March 2004. The total number of all staff in the SCEPF is now close to 2,400, mainly due to the addition of nearly 2,000 employees from the former State Forestry Enterprise, *Tajikles*. Its Collegium, or board, reviews and decides on the most complex issues. The Committee also confirms the appointment of the local environmental protection committees' chairs, nominated by their *hukumats*. In addition to its central administration (approximately 75 staff), the SCEPF has 11 departments, as well as local offices (environmental protection committees) in each *oblast*, *raion*, and city. These local committees also report to their *hukumats*. Their organizational structure largely mirrors the structure of the SCEPF, although in some cases a "department" may contain only one specialist. Every department has its own regulation defining its structure and responsibilities. Each is approved by the SCEPF's Chair, except that of the Forestry Department's State Forestry Guards, which was approved by Governmental regulation. As the central State executive body responsible for environmental protection, the sustainable use of resources, forestry and hydrometeorology, the SCEPF's most important functions are to:

- Define the main strategies for the protection, study, conservation and sustainable use of resources, the mitigation of the effects of climate change;
- Prepare and publish biennial state-of-the-environment reports;
- Draft laws and other regulatory documents, including environmental standards, instructions and methodologies for the use of resources;

48. Issue individual permits for the use of specific resources and withdraw these if the user violates their terms;

- Set quotas for the hunting and collection of certain species of animals and plants, as well as for the import of ozone-depleting substances;
- Carry out the ecological component of planned activities;
- Define the system of specially-protected territories and maintain State cadastres of such territories, forests, plants, water bodies and hazardous waste;
- Develop the system of economic instruments encouraging a sustainable use of natural resources.
- Set limits on the use of all types of natural resources and the rates;
- Organize ecological tourism and recreation within the specially protected territories; and
- Manage the special (extra-budgetary) environmental fund.

49. The SCEPF's functions and scope of activities are broader than those of its predecessor, the former Ministry of Nature Protection. In accordance with the 2003 Presidential Decree on the System of Central Executive Bodies, the Committee for Environmental Protection and Forestry coordinates environmental activities with other ministries. Thus, it must formulate and implement uniform environmental strategies and policies as a basis for this coordination with, *inter alia*, the Ministry of Health, the Ministry of Industry, the State Committee for Land Administration, the Ministry of Agriculture, the Ministry of Land Reclamation and Water Resources, the Ministry of Economy and Trade, the Ministry of Finance and the Ministry of Education. However, the SCEPF has not yet begun to coordinate inter-ministerial environmental activities, however. In part this can be attributed to the absence of a history of joint activities of various ministries except in the form of providing written comments to the Government on proposals developed by another ministry. An encouraging sign is that there are

regular, if limited, joint activities between the SCEPF's local offices and the *hukumats* (e.g. a reforestation campaign in Sughd *oblast*; close cooperation between Dushanbe's local environmental committee and its *hukumat* on reforestation around the city and improving household waste collection and management). The SCEPF's central administration, however, has failed so far to engage in closer cooperation (or coordination) with other ministries (e.g. failure to produce study materials specific to Tajikistan for ecology classes in educational institutions, which should have been done jointly with the Ministry of Education).

50. Other key ministries and departments involved in nature and biodiversity conservation issues include: (i) National Biodiversity and Biosafety Centre, responsible for the implementation of the Convention on Biodiversity and the national strategy on biodiversity conservation, as well as coordination and solutions related to the convention; (ii) Academy of Sciences and its research institutes; (iii) Institute of Botany; (iv) Institute of Zoology and Parasitology; (v) Institute of Plant Physiology and Genetics. The Ministry of Economy and Trade is responsible for planning of the overall development and supervision of sectoral planning.

51. The State Committee on Land Management (SCLMM), created in 1996, is tasked with implementing Government policy in the field of land relations and land reform, controlling land use, creating and maintaining land cadastre and a land registration system, monitoring land, implementing land reform, ensuring rational use of land, maintaining land quality, creating conditions for farm diversification and implementing international commitments in the field of land management. Subordinate to the SCLMM are local committees covering the country plus other organizations. These employ 525 persons. The specialized organizations of SCLMM are: State Project Institute on Land Management (or "Tojikzaminsoz"), the design and research institute "Fazo" (Cosmos), and the state enterprise "Markaz Zamin"(Land Center). Tajikzaminsoz is in charge of keeping the inventory of all lands, monitoring transfers of lands, establishing land values, and various land assessments (economic, geo-botanical). Fazo is in charge of urban land inventories, inventories of population distribution, topographic mapping and cartographic material.

52. Other relevant institutions and organizations include the following:

- The scientific community: A number of scientific and education institutions are involved in different aspects of SLM. Most of them are attached to a particular ministry or state committee. The most important are the Academy of Agricultural Sciences and its sub-unit the Tajik Soil Science Institute (under MoA), Tajik Forestry Research Institute (under SCEPF), and Hydraulic Engineering and Land Reclamation Research Institute (MWRLR).
- Regional, District and Sub-district Authorities: Local government (*hukumat*) in Tajikistan is administered at three levels: *oblasts* (provinces), *rayons* (districts) and *jamoats* (sub-districts, groups of villages). The Government appoints governors and deputy governors of oblast and rayon administrations. In principle, heads of *Jamoats* are elected. With respect to each sector (e.g. agriculture), a deputy governor at oblast and rayon level is responsible for the sector concerned. Often this is the first deputy. Each of the ministries and state committees operating in the sector has a department office attached to the local administration. Organizations sub-ordinate to the ministries and state committees also have offices attached to the local administration of the area in which they are located. Heads of the offices are appointed by the local administration subject to approval a higher level in the organizations hierarchy. Local governments have extensive powers related to land and its use. Among others, they may withdraw land from existing use if such use is deemed inappropriate. They keep property and land certificate registers. They establish the rule of water use in their jurisdiction, and in collaboration with local personnel of technical ministries monitor the use of natural resources (forests, mineral extraction) and enforce them through fines and other means. The responsibilities of the local government in land-related matters are spelt out in Articles 7 and 8 of the Land Law.

- National Union of Dekhan Farms*:* The Union was founded in 1996 in accordance with the 1992 Law on Dekhan Farms. It is the apex of Oblast and Rayon Associations of Dekhan Farms. It sees itself as an "independent institution reporting to the Government and implementing "Government policies". At the national level, there are 15 staff. At the rayon level, associations of dekhan farms range from little more than renamed brigades of former state and collective farms to farmer self-help organizations. The National Union seeks to provide a large range of services to member farmers, such as preferentially priced fuel, advances of seed (repayable in kind) and legal support, but in practice, it currently has limited capacity to do these.
- **Village Organizations and Jamoat Resource Centers**: During the period of the vacuum in local administration capacity in the late 1990s, village organizations were pioneered by the Aga Khan Foundation mainly in Gorno Badakhshan. These were representative bodies at the local level tasked with administration of emergency and rehabilitation assistance, and later on, in planning local development. Similarly, UNDP and others strove to establish a viable local-level mechanism to implement the Rehabilitation, Reconstruction and Development Project (RRDP) between 1996 and 2000. In the end, the mechanism created took the form of Jamoat Resource and Advocacy Centers (JRCs). These centers typically identify local development needs and administer a revolving fund contributed by various donors. They have the advantage of having a legal status and to be formally linked to the official structure of the government (the Jamoats). Elsewhere, the ordinary Jamoat structure (Jamoat Development Committee) performs development-oriented tasks and is considered the lowest governmental structure according to existing legislation.

1.2 Threats, causes and impacts

53. Tajikistan faces food insecurity, poverty, and environmental degradation. The food security monitoring conducted by UN in October and November 2008 identified almost 650,000 people as severely food insecure and 1.5 million as food insecure in Tajikistan. The loss of agro-biodiversity is due to increasing human pressures on natural resources associated with forestry, agriculture, and pastures, in turn due to the transition from a centralized to a market economy, following the collapse of the Soviet Union. While the government is trying to restructure the agricultural sector and diversify production – genetic erosion is increasing. Fruit diversity, both wild and domestic, is threatened by several factors. Preliminary analysis suggests that the main **threats** to globally significant agro-biodiversity of Tajikistan are:

54. Land conversion to agriculture: Agriculture is Tajikistan's major economic sector and source of employment[10]. Almost three quarters of the population live in the countryside and the importance of agriculture for their survival cannot be overestimated. Although just 5% of the country is cultivable, the agriculture sector accounts for 65% of employment (132% of 1991 levels), about 25% of GDP, and 11% of export revenues. Agricultural lands constitute 4.1 million hectares; the bulk of which is pasture. The area of arable land per capita is lower in Tajikistan than in the other Central Asian countries and is a bottleneck to economic development, made worse by a high population growth rate. Cotton, the major cash crop, accounts for roughly two-thirds of gross agricultural production value[11]. The share of grain cultivated for domestic consumption has grown tremendously in recent years. The amount of agricultural land in Tajikistan has particularly increased, primarily due to cultivation of rain-fed areas, many previously considered marginal for cultivation, but now used to produce low yields of crops such as wheat, flax, barley, bean and chickpea. Converted areas are home to indigenous plants such as persimmon, pea, grape and apples. Farmers are increasingly cropping species-diverse natural pastures. Converted sloping lands are prone to erosion and are often abandoned after soil loss and nutrient depletion. Farmers have few viable alternatives to improve their agricultural and forestry practices in ways that are biodiversity-friendly. In 1996-1998, 75,000 ha were distributed in small plots by

[10] The mainstay of Tajikistan's economy is electricity, cotton and aluminium.
[11] Tobacco, silk, (citrus and other) fruits, and vegetables are also traditional exports to other CIS countries.

presidential decree. The total acreage of household plots is 125,000 hectares, 60% of which are irrigated. Most households own livestock. Unfortunately, many are new farmers either unfamiliar with or lacking the means to implement more sustainable natural resource management practices; and many in irrigated areas are forced to grow cotton to the exclusion of other crops through a complex system of debts and obligations managed by the government. The process of handing rights over to farmers to use agricultural land is ongoing; and private farmers[12] now cultivate much of the agricultural land including areas that were traditionally pasture. These "individual" and "family" farms are generally small (typically 1-4 ha) and isolated from extension services. The most detrimental land degradation occurs in agricultural (including irrigated cotton-growing) areas. High water tables and salinity are problems; soil erosion even affects 60% of irrigated land. Deforestation has accelerated in the past 10 years, exacerbating soil erosion and desertification, and making steep land more prone to landslides. Agricultural expansion has diminished biodiversity. Land degradation, deforestation and desertification are threatening Tajikistan's rich flora and fauna.

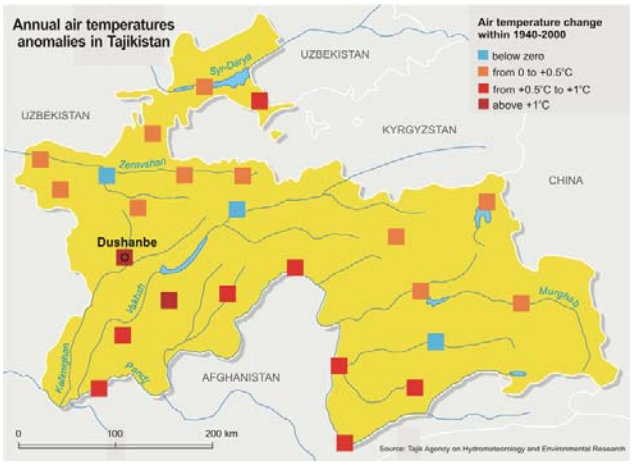
55. Habitat degradation and species loss as a result of overgrazing: Livestock stocking rates are high: people keep large numbers of mainly cattle and goats to insure against future economic difficulties. Poor veterinary facilities mean that farmers keep even larger numbers to ensure sufficient survival rates. Overgrazing has led to: (i) gradual disappearance of valuable fodder plants (such as *Astragalus, Potentilla*, and *Oxitropis*); (ii) genetic erosion of globally significant populations; (iii) decreased productivity; and (iv) degradation of pastures through invasion by alien species (such as *Acroptilon, Artemisia*, and *Imperata*). Valuable juniper, walnut, birch and unique pistachio forests have shrunk by 20 to 25%, largely as a result of cattle grazing. The situation is particularly bad in the Baldjuan, Muminabad and Khovaling regions. Cattle trample young plants, preventing forest regeneration. Cleared lands are often unsuitable for either cultivation or pastures, typically degrading after two to three years, and are abandoned. Degraded lands are not easily restored and usually continue degrading.

56. Over-harvesting: Present rates of exploitation are leading to net losses of trees (such as pistachio, walnut and apple). Tree cutting has led to invasions of weeds and alien species, erosion, landslides and the impoverishment of winter pastures. Many wild relatives of potential global importance – of legumes, ornamentals and medicinal plants – in pastures and forests soon face local extinction.

57. Moreover, a critical threat requiring greater analysis is Climate Change. The impacts of climate change are already evident in Tajikistan. As in the rest of the Northern Hemisphere, increased temperatures are generally affecting agricultural and forestry management at higher latitudes, "such as earlier spring planting crops, and alterations in disturbance regimes of forests due to fires and pests" (IPCC, 2007). Of 106 datasets on physical systems for Asia, of which four were for Tajikistan, 96% show "significant changes consistent with [global] warming"; of eight datasets on biological systems, one of which was from Tajikistan, all showed "significant changes consistent with [global] warming" (IPCC, 2007). Air temperatures have warmed over most of Tajikistan during the last 60 years, with the mean temperatures increasing by as much as 0.5 to 1.0°C (Figure 1). Dushanbe, the capital, has increased by more than 1.0°C, (although this difference may be attributed to the urban heat island effect).

[12] In March 2004, there were 20,743 private *dekhkan* farms with 923,000 shareholders covering 53% of the land. There are three kinds of private farms: farms of individual entrepreneurs, family farms and cooperative ("company") farms, this last category being in some cases only cosmetic transformations of former kolkhozes and sovkhozes.

Figure 1. Increase in mean annual air temperatures over the 50 years 1940-2000. Source: Agency on Hydrometeorology of the Republic of Tajikistan (2007).



58. Analysis of other long-term records, compared with Global Climate Model (GCM) predictions for 2030, show that temperatures have increased steadily for the last 50 years and will continue to do so. One result is a marked shift in the spring and autumn "frost" thresholds, when the mean daily temperature rises above or falls below 0°C. Historical shifts at the mountain meteorological station of Dehavz in the upper reaches of the Zeravshan River show that "thaw" historically occurs three days earlier in the spring and the "freeze" occurs six days later in the autumn, The GCM data show that the trend will likely continue, more in the spring than the autumn.[13] There is now higher confidence generally in the projected increases in droughts, heat waves and floods, as well as their adverse impacts (Table 5).

[13] The model data should not be taken as a firm prediction, but an indication of likely trends.

Table 4. Examples of possible impacts of climate change due to changes in extreme weather and climate events, based on projections to the mid- to late 21st century. These do not take into account any changes or developments in adaptive capacity.

Phenomena and direction of trend	Likelihood of future trends based on projections for 21st century using SRES scenarios	Examples of major projected impacts by sector	
		Agriculture, forestry and ecosystems	Water resources
Over most land areas, warmer and fewer cold days and nights, warmer and more frequent hot days and nights	Virtually certain[b]	Increased yields in colder environments; decreased yields in warmer environments; increased insect outbreaks	Effects on water resources relying on snowmelt; effects on some water supplies
Warm spells/heat waves. Frequency increases over most land areas	Very likely	Reduced yields in warmer regions due to heat stress; increased danger of wildfire	Increased water demand; water quality problems, e.g. algal blooms
Heavy precipitation events. Frequency increases over most areas	Very likely	Damage to crops; soil erosion, inability to cultivate land due to water-logging of soils	Adverse effects on quality of surface and groundwater; contamination of water supply; water scarcity may be relieved
Area affected by drought increases	Likely	Land degradation; lower yields/crop damage and failure; increased livestock deaths; increased risk of wildfire	More widespread water stress

59. Long-term instrumental observations show increasing climatic variability in Tajikistan. A succession of extremely hot and dry years followed by extreme cold is becoming a prominent feature of the climate. Precipitation estimates vary and have a high margin of error, due to complex mountainous topography. However, there is a slight (up to 8%) increase in precipitation in Tajikistan, mainly due to short episodes of extremely intensive rainfall (largely in the Fergana valley and Khujand region). Despite the high uncertainties, all scenarios predict that precipitation will become more intense and sporadic, leading to more frequent flood and drought periods.

60. The cold winter of 2007-2008 and the severe droughts of 2000-1 and 2007-8 in Tajikistan are examples of this increasingly frequent natural hydro-metrological phenomenon with important consequences for the population and ecosystems. The exceptionally cold winter of 2008 afflicted much of Central Asia, but specifically in Tajikistan, it caused the breakdown of the national energy infrastructure, reduced winter crop yields and livestock herds. Most of the population endured the cold without access to reliable heating or electricity services; economic growth slowed; and approximately 2.2 million citizens experienced food insecurity with 800,000 of these in need of immediate assistance (FAO, World Food Programme (WFP) and UNICEF *Food Security Assessment 2008*).

61. The widespread distress was recorded by the Government of Tajikistan, whose initial estimates of the damage to the economy of the country from the winter freeze of 2008 were US$1,000 million. As a result of the freeze, entire winter crops were destroyed, 70% of the cattle stock died, 90% of industry stood idle, and while electricity was supplied in and around the capital for four hours in the mornings and evenings, rural areas were without electricity for weeks. According to information from the WFP, about

3,000 hectares of potatoes were affected. Approximately 100,000 tons of the winter potato crops were frozen in storehouses and basements. Also 2,000 hectares of alfalfa, used as forage for livestock, 450 hectares of winter onions, 50 hectares of grain and vegetable crops were lost. More than 1000 hectares of vineyards suffered significantly. Losses in agriculture, according to the preliminary data from the Ministry of Agriculture, dated by the beginning of February 2008, constituted more than US$20 million.

- Recent droughts have also contributed to growing domestic food shortages. The country has a 20% food deficit, and even though grain production has increased, the need for imports was above 600,000 tons in 2002. Some of these quantities are supplied in food aid. The one million tons of wheat and 0.5 million tons of potatoes produced in 2007 were insufficient for the country's needs. Calorie intake is reported to have fallen from 2,615 kcal in 1985 to 1,528 kcal in 2003 (Asian Development Bank, 2005). Tajikistan is therefore particularly vulnerable to possible widening and deepening of the 'compound crisis' phenomenon that threatened water, energy and food security in the first quarter of 2008. These problems were exacerbated by global food and energy price trends, and subsequently by the onset of drought in the spring and summer across the region. Clearly, institutional mechanisms and support do not yet exist to cope with and/or adapt to climate change. Measures to confront climate change in the agriculture sector must be integrated into sectoral reforms at both the national and local levels.

1.3 Long-term solution and barriers to achieving the solution

62. The long-term solution is that considerations of globally significant agro-biodiversity and climate resilience are embedded in the agriculture and rural development policies and production practices at national and local levels in Tajikistan. At the same time, agro-biodiversity conservation will provide crucial opportunities to address the climate change risks and vagaries threatening the mountainous ecosystems and rural livelihoods of Tajikistan.

63. There are several **barriers** to achievement of the long-term solution:

- Systemic and institutional capacity: The policy and legislative framework of Tajikistan is not fully supportive of the conservation and sustainable use of (agro-)biodiversity or the development of adaptive capacity. What does exist, and what is being implemented in terms of programmes and plans, makes little reference to agro-biodiversity and the need to protect it. There are regional strategies for the agrarian sector to focus on increasing the productivity of both cotton and wheat, but development of agriculture in mountainous districts is not a priority. Conservation of biodiversity and agro-biodiversity are lower priorities. Environmental policy does not include provisions for agricultural biodiversity conservation, a gap that reflects the low financial value – in both the local and global economies – assigned to agro-biodiversity. The preliminary analysis of existing legislation and policies in Tajikistan undertaken during the preparatory phases identified legislation and of policies covering biodiversity conservation, land use and protected areas, support to farmers, farmers' rights, and development of new crops and varieties. There is general consensus that the policies "on the books" are multitudinous and comprehensive. The study, unfortunately, was not able to investigate the implementation – or lack of – and effectiveness of such policies. Overall, the study identified the needs to strengthen protection of natural resources, to protect farmers' rights, and for benefit sharing; and apparently, laws do not adequately protect forest areas, resulting in loss of fruit genetic diversity due to over-exploitation and deforestation. Current agriculture and food production regulations do not consider climate change risks. Tajikistan does not have the institutional and policy frameworks to adequately adapt to the predicted effects of climate change. The dynamic of climate change at the national and local level is poorly understood; communities are ill prepared to cope; and adaptation policy and technical assistance options have not yet been identified. The government institutions responsible for biodiversity conservation in Tajikistan include the National Biodiversity and Biosafety Centre (National Focal Point on CBD); the National Laboratory for Biodiversity and Biosafety; the Committee on Environment Protection (CEP) (through the National Parks Agency with

responsibility for protected areas and the Forestry Agency); the Department of Environment of the Office of the President, which is responsible for coordination of overall policies; the Ministry of Agriculture (responsible for agro-biodiversity); and district authorities tasked to implement policies at the local level. Parliament is responsible for the adoption of policies and legislation. Those institutions with a mandate to monitor climate change and promote adaptation include the Committee on Environment Protection (through the Agency for Hydro-metrology, which serves as the National Focal Point on UNFCCC); and Department of Environment of the Office of the President and Parliament as above. The CEP has not begun to coordinate inter-ministerial environmental activities, however. Action to conserve diversity of horticultural crops and wild fruit species is also hampered by inadequate information about the value of these resources, lack of coordination between environmental protection and agricultural development agencies, and inadequate communication among local scientific institutes and local and national government agencies. Information and knowledge on the number and quality of horticultural crops and their genetic resources, distribution, conservation, and use are inadequate. There is no agency capable and responsible for monitoring, regulating, and advising farmers in terms of local land and resource use. Even when legislation is appropriate, national agencies lack capacities in local-level project development, biodiversity conservation, and market-driven approaches. These barriers are compounded by inadequacies in the systems for coordinating conservation management with the regulatory functions of public production sector institutions. Coordination and collaboration among spheres of government responsible for land use planning, decision making, and land management needs to be improved. Equally, contacts between public sector agencies and academies on the one hand, and the private sector are very limited. Weak institutional capacity, deteriorating infrastructure, and funding shortages mean that government agencies at the regional (*oblast*), district (*rayon*) and sub-district (*jamoat*) levels are restricted in their abilities to adapt to socio-economic and climate change.

- Current coping measures and capacities of the rural communities are inadequate as climatic irregularities increase in frequency and intensity: Agricultural output in areas with high agro-biodiversity in Tajikistan is sensitive to changes in climatic conditions. Droughts, floods, and harsh winters are associated with stock losses and reduced agricultural production. Poor farmers and rural communities lack coping capacities in the face of such risks. Existing extension services can do little to help farmers to adequately respond and adapt to the adverse effects of climate change. Farmers in most cases do not have access to technical advice, and are not aware of the risks posed by climate change to their food security. They have limited knowledge of available options for using agro-biodiversity as means to adapt. Work is needed with farmers on both in situ conservation and on their adaptive use of such germplasm.
- Market barriers: Reducing poverty, increasing food security, conserving biodiversity, and enhancing livelihoods in Tajikistan all depend on the sustainable agricultural development. The vast majority of communities, however, lack access to markets. The lack of value chains linking producers to consumers in new and existing markets, domestic and/or international, is a barrier to increasing incomes from existing products, to developing new products, and, albeit less directly, increasing the value and thereby the potential of conserving agro-biodiversity. Markets for agricultural outputs and inputs, although liberalized, are developing slowly. With the exception of cotton, agricultural processing is a serious hurdle. The availability of inputs and the potentials for further development of markets differ significantly among different parts of the country. Poor farmers have limited access to credit, to vital inputs, and to training in agricultural management. They do not know where to sell their produce or animals outside of local markets, which are flooded with products at harvest time. Traditional production systems provide few benefits. The problem is compounded by lack of physical infrastructure, and poor internal and external communication and transport systems – roads, railways and terminal storage facilities. Overall, farmers are constrained by: (i) their inability to reorient production and processing to meet emerging consumer demands, especially in international markets; (ii) increased competition in export markets; (iii) an under-developed agriculture credit sector; (iv) a lack of national and international investment in potential new markets for globally significant agro-

biodiversity; (v) restrictive geographical and climatic factors; (vi) lack of secure land tenure combined with failed privatisation and land use policies; (vii) deteriorated infrastructure and services (e.g., out-of-date farming equipment and storage, production and processing facilities; (viii) poor transport links combined with remoteness from markets; and irregular water and electricity supplies); and (ix) a lack of modern business skills and experience. These constraints negatively affect needed scale and timeliness of production, among others.

1.4 Stakeholder analysis

64. The project will implicate multiple and diverse institutions and organizations at the national and local levels. Their current and expected roles are defined in Table 5:

Table 5. Stakeholder roles and responsibilities

Stakeholder	Roles and responsibilities
Committee on Environment Protection and Forestry	Provides implementation of nature-conservation policy and ensures sustainable use of nature: • Improving legislation on environmental management, forestry code, regulatory and legislative standards for the extraction of natural resources, etc. • Improved methods for environmental impact assessment in the evaluation of development projects in rural areas, taking into account the value of agricultural biodiversity and adaptation to climate change. • Improvement programs of state control over operating systems, improving the system of permits and licenses for natural resources. • Introduction of new mechanisms for environmental expertise in evaluating development project territories.
Ministry of Agriculture	Formulates and execute policies of agricultural production: • Improving legislation on environmental management, forestry code, regulatory and legislative standards for the extraction of natural resources, etc. • Improved methods for environmental impact assessment in the evaluation of development projects in rural areas, taking into account the value of agricultural biodiversity and adaptation to climate change. • Improvement programs of state control over operating systems, improving the system of permits and license for natural resources, Introductions new mechanisms for environmental expertise in evaluating development project territories.
Agency on Land Management	Responsible for: • The introduction of functional zoning on the basis of the value of land, development of new mechanisms under the terms of land use, introduction of new economic methods. • Manage land reforms and the privatization process. • Introduction of territorial inventory of land-based GIS maps, training of specialized service providers, the inventory of land-based GIS.

Stakeholder	Roles and responsibilities
Agency on Hydrometreology	Responsible for the implementation of Tajikistan's commitments to UNFCCC and for coordinating the overall activities in the climate change/adaptation to climate change sector including: • Establishing "Center for the study of climate change". • Managing agro-climatic observation at five meteorological stations. • Better dissemination of information (warnings) for extreme climatic events, including through the Operational Services Ministry for Emergency
National Biodiversity and Biosafety Center	Provides the implementation of activities linked with the implementation of Tajikistan's commitments to UNCBD.
National Center for Genetic Resources	Responsible for: • Establishing the national genebank • Training, including training of specialist biologists. • Data collection, description, analysis, catalog composition and preparation for storing.
Academy of Science of the Republic of Tajikistan	Provide scientific justification for priority activities on sustainability of nature use.
Institute of Botany	Responsible for: • The study of life forms of plants to assess the status of agro – ecosystems. • The preparation of studies and recommendations on indicator species.
Regional (Oblast) Government (Hukumat)	Governors and deputy Governors facilitate interaction with relevant national Ministries and Committees. Supervise district government activities.
District (Raion) Government (Hukumat)	Provide support to, and oversees, local economic and land use activities, mostly through Jamoat governments.
Sub-district (Jamoat) Government (group of villages)	Provide support to, and oversees, local economic activities. The Jamoat head will represent those Jamoats engaging in project activities.
Jamoat Resource Centers	Supporting local governance, technical assistance and credit facilities. The activities of JRC vary from site to site, but include: • Mobilizing financial, material and human resources within the local community and from outside sources including private sector contributions, national governmental and nongovernmental organizations, international organizations and Micro Finance Institutions (MFIs). Facilitating the work of the MFI subsidiaries at local level to ensure efficient, transparent and effective use of loans. • Allocating mobilized resources for community development projects in accordance with transparent criteria and policy priorities established through open consultation with the local community. • Supporting local micro-enterprise and small business initiatives in accordance with transparent criteria and policy priorities established through open consultation with the local community.
Micro Finance Institutions	Ensure efficient, transparent and effective use of loans by communities in support of rural development and livelihoods objectives.
National Union of Dekhan Farms	NUDF is the apex of Oblast and Rayon Associations of Dekhan Farms. At the rayon level, associations of dekhan farms range from little more than renamed brigades of former state and collective farms to farmer self-help organizations. The National Union seeks to provide a large range of services to member farmers, such as preferentially priced fuel, advances of seed (repayable in kind) and legal support, but in practice currently has limited capacity to do this.

Stakeholder	Roles and responsibilities
Local farmers	• Utilizing biodiversity, currently at unsustainable rates. • Holders of traditional knowledge.
Local and national NGOs, such as Boghparvar[14] and Zan va Zamin[15]	• Supporting biodiversity conservation. • Providing linkages between communities and government. • Communications and awareness raising.

65. The main beneficiaries of the project will be local communities (jamoats), NGOs, farmers and local authorities. The project will work at the community level, through the Jamoat Resource Centers[16] supported by the UNDP Communities Programme[17] and with the GEF Small Grants Programme. The implementation of pilot activities will be done through JRCs selected in accordance with the identified priorities on agro-biodiversity conservation and sustainable use, climate change imperatives, and community willingness to engage in agro-enterprise development.

66. All major institutional stakeholders were fully consulted during the project development process and expressed their unanimous support for the project, including:

- The National Biodiversity and Biosafety Center and UNCBD Focal Point;
- Committee for Environment Protection and Forestry;
- Ministry of Agriculture;
- Agency for Land Management, Cartography and Geodesy;
- Ministry of Economy, Trade and Development;
- Agency on Hydrometreology and UNFCCC Focal Point;
- Oblast, district and local authorities in proposed project areas;
- Civil society bodies, such as the JRCs and general public; and

[14] 'Boghparvar' trains farmers and provides agricultural advice and support to local farms.
[15] Zan va Zamin provides support and training for women across a broad range of issues.
[16] The complete terms of reference for JRCs can be found in the annexes.
[17] UNDP's Communities Programme is a successor to the Reconstruction, Rehabilitation and Development Programme (RRDP) established in 1996. This programme worked successfully for several years in most of the rural areas of Tajikistan and has a positive experience in lowering the poverty on the community level. A key strategy for many international partners, including UNDP, is to support rural development by supporting the JRCs. In this context, the UNDP is implementing its Communities Programme. A multi-year initiative aims to develop local capacities in support of Tajikistan's Poverty Reduction Strategy Paper (PRSP), the Programme develops capacity at Jamoat and district level to provide services to villages, communities and farmers. With the full support of government and many donors, total funding to this Programme is now over $20 million. The Programme covers five areas of Tajikistan (namely, Aini/Zarafshan, Gharm/Rasht, Kulyab, Shaartuz and Sogd), including all of those in the proposed Project Area. So far, UNDP has helped to establish 86 JRCs throughout Tajikistan. In a situation where the local authorities have very low capacities, JRCs play a very important role to improve the situation at the local level in Tajikistan. The assessment of JRCs and DDCs conducted by the independent international consultant in 2004 says: "…beyond their numbers, their territorial coverage, the number of micro-credits to help households generate income and improve food supply, the number of jobs created, the number of water supply systems reconstructed, school classrooms renovated and other material contributions to local economies, these local development committees are providing an even more basic ingredient for sustainable long-term development. More specifically, the expanding network of JDCs [*currently referred as JRCs*] and DDCs is fundamentally changing the way decisions are made, the way individuals both inside and outside government structures approach and participate in political and economic decision-making processes. JDC and DDC activities are having a significant and positive impact on relationships between local government and civil society, expectations of both local government officials and of role "ordinary" citizens have in promoting local development and good governance, perceptions of 'the rule of law' and citizens' legal rights, and opportunities for participation in decision-making by community groups and individuals previously excluded or underrepresented in that process." (Jonathan G. Dunn, 2004)

- Major relevant donor community players such as ADB, WB, FAO, SDC, EU, and others.

67. In particular, field trips to proposed project sites in Shurobod and Baldjuvan districts allowed for consultation with Hukumat officials and representatives of the local population and the assessment of their needs and interests with respect to the conservation and use of globally significant agro-biodiversity in light of climate change. The assessment actively sought feedback on their recommendations and points of view regarding improvement of the current situation and ideas raised by the project / national experts.

68. During the design and proposal development stages of the project, a Logical Framework workshop was held in Dushanbe and attended by over 30 of those most actively involved and concerned with the project. The final stage in stakeholder consultation was the dissemination of the draft proposal and inclusion of comments and feedback received.

69. Within the project itself, full stakeholder involvement and participation will be facilitated wherever possible as a deliberate strategic approach adopted by the project. Furthermore, through the development and capacity strengthening of the JRCs and farming communities, the ability of these stakeholders to play a decisive role in the management of resources they ultimately depend on will be empowered. Special attention will be paid to ensure adequate participation of women.

70. Finally, through local and national public awareness and dissemination efforts, all relevant stakeholders will become better aware not just of the issues and best practices for addressing them but also their potential role and opportunity to contribute to the conservation of globally significant agro-biodiversity, which will serve at the same time as a means to adapt to climate change and generate additional income through the development of agro-enterprises based on locally available agro-biodiversity.

1.5 Baseline analysis

1.5.1 Agro-biodiversity conservation

71. The baseline can be considered in terms of: (i) efforts to conserve biodiversity in the Project Area; (ii) likely developments in the agriculture and forestry sectors; and (iii) rural development programmes in the Project Area.

Biodiversity conservation

72. Tajikistan's past strategy for conserving biodiversity has relied on protected areas, which constitute 22% of the total area. Over the past few years, there has been a strong shift to encompass agricultural landscapes. The National Action Plan and Report on Building Capacity to Implement Commitments on Global Environmental Conventions, a result of the National Capacity Self Assessment (NCSA) process in Tajikistan, recognises the importance of restoring degraded agro-ecosystems. The NAP also supports the application of traditional methods of agro-biodiversity conservation and its rational use. The present project prioritizes the need for the improvement of the legislative base for the implementation of government policy on agro-biodiversity, with a particular focus on the effective *implementation* of existing legislation at the local level.

73. In the baseline, biodiversity conservation in Tajikistan focuses on:

- Establishment of protected areas; and
- High-profile biodiversity, such as rare mammals.

74. Agricultural biodiversity is typically found in small plots near to and in villages, and it is impractical and unsuitable to gazette this land as a protected area. Agricultural biodiversity typically consists of a large number of relatively unglamorous species and varieties. For these reasons, without GEF incremental support, the baseline efforts to conserve biodiversity in Tajikistan will neglect agro-biodiversity.

Agriculture and Forestry Development

75. All government policies state the importance of conserving biodiversity, and in the baseline, all agencies are committed to this. However, in practice, given limited resources and limited capacity, the priority is on increasing production and on short-term poverty reduction.

76. The Forestry Policy is currently being finalised. Forestry activities are to focus on production and protection. Forestry production focuses almost entirely on timber, the large potential value of non-timber forest products (i.e. agro-biodiversity in forests) is not accounted for in present forestry activities, and does not feed into present policy. In the baseline, the many opportunities to mainstream biodiversity into the forestry sector by increasing the contribution that agricultural biodiversity makes to the economy and simultaneously ensuring the sustainable use of agro-biodiversity are missed. In the baseline, forestry policy overlooks most agro-biodiversity found in forests.

77. There is currently no overall agricultural policy or strategy in Tajikistan. In practice, however, sub-sectoral strategies exist for the most important crops, such as cotton and wheat. Overall, agricultural focus is on increasing yields of cotton and cereal crops on irrigated lands. In the baseline, the development of agriculture in uplands is not a priority. The conservation of biodiversity, even agro-biodiversity, is even less of a priority. The many opportunities to mainstream biodiversity into the agricultural sector by increasing the contribution that agricultural biodiversity makes to the economy and simultaneously ensuring the sustainable use of agro-biodiversity are missed.

Rural Development

78. In line with the Law on Local Self-Governance, the Jamoat is the lowest level of government, and correspondingly the government level with best understandings and interactions with people. In many jamoats, Jamoat Resource Centres (JRCs) have been established with support from the UNDP Communities Programme[18]. The JRCs are registered non-governmental organizations established to promote local economic development, poverty reduction, transparency and accountability in local governance and civic education. They are civil society organizations providing economic development and poverty reduction services to inhabitants of Jamoats as well as to local authorities. In working toward these objectives, JRCs emphasize an inclusive participatory process of decision making open to all members of their community. The JRCs in Tajikistan are considered an effective and sustainable tool for fostering local and rural development. Across the region, they are considered one of the most successful approaches. This is demonstrated by the fact that many international partners (e.g., Aga Khan Foundation) have started operations in support of the JRCs.[19]

79. In general, JRCs have not so far focused on issues relating environmental protection or specifically, agro-biodiversity conservation and sustainable use. The sustainable use of agro-biodiversity can make a contribution to local development; however, this requires specialist skills and technologies that are not available to the JRCs at this stage. The present project will thus seek to address this issue through Outcome 2, with emphasis on the development of JRC capacities to provide support and services (including micro-finance) to local communities on issues relating to agro-biodiversity conservation and sustainable use, adaptation to climate change and the development of agro-enterprise based on existing local agro-biodiversity.

1.5.2 Building capacities to adapt to climate change

80. Agricultural output in areas with high agro-biodiversity in Tajikistan is sensitive to changes in climatic conditions. Droughts and floods are associated with stock losses and reduced agricultural production. Poor farmers and rural communities lack coping capacities in the face of such risks. Existing extension services can do little to help farmers to respond adequately and adapt to the adverse effects of

[18] See footnote 13 for a detailed description of the Communities Programme.

[19] A description of the standard roles and duties of a JRC is provided in the annexes (TOR_JRCs).

climate change. Farmers in most cases do not have access to technical advice, and are not aware of the risks posed by climate change to their food security.

81. Current agriculture and food production regulations do not consider climate change risks. Tajikistan does not have the institutional and policy frameworks to adapt adequately to the predicted effects of climate change. The dynamic of climate change at the national and local level is poorly understood; communities are ill-prepared to cope; and adaptation policy and technical assistance options have not yet been identified.

82. Thus Tajikistan does not currently have the capacity, capability or the institutional and policy frameworks to adapt adequately to climate change and associated shocks. Support for farmers in Tajikistan from the central government is very limited. The harsh winter of 2007-8 and the compound crisis phenomena that took hold in Tajikistan during the first quarter of 2008, in terms of threats to water, energy, and food security, demonstrated this in stark terms when millions of people spent weeks in exceptionally cold winter conditions without access to reliable heating and electricity services; economic growth slowed; and food and energy security were adversely affected.

83. Notwithstanding the presence of development programming portfolios and humanitarian response instruments, and despite the legacies of annual appeals for donor assistance, the Government of Tajikistan, United Nations agencies, and the international community were unable to respond quickly and effectively to the humanitarian challenges presented by the compound threats to energy and food security. It is widely recognised that the international community in Tajikistan was slow to understand the nature, scope, and severity of the compound crisis. Since cold weather is normal in winter, it was hard to understand (or anticipate via early warning mechanisms) the complexities of the crisis's socio-economic impact. The agencies present in Tajikistan are engaged in development programming; few have the expertise or organisational structure needed to switch quickly to designing and implementing emergency response operations, particularly in harsh winter conditions. Developing a consensus about the nature and extent of the crisis took time and energy, both within the international community and vis-à-vis the government, which initially feared that acknowledging the existence of the compound crisis would underscore its failures to delivery basic services.

84. The country is, nevertheless, committed to develop and enhance its adaptive capacity through its national development plans such as the Action Plan on Climate Change and the National Action Plan and Report on Capacity Building to Implement Commitments on Global Environment Conventions. In May 2008, the *Action Plan for Uninterrupted and Efficient Operations in Autumn-Winter 2008-2009* was finalised to provide an integrated response to the country's energy, food, and water (and sanitation) challenges.

85. In support of the above efforts, the present project will seek to establish long-term adaptive measures, which will need to include effective policy implementation for the conservation of agro-biodiversity, capacity building for improved resources and agricultural management, and for management, largely *in situ,* of genetic resources.

1.5.3 Agro-enterprise development

86. During Soviet times, Tajikistan was a main supplier of fresh and processed fruit and vegetable products to Russia (Moscow and Saint-Petersburg). After the country gained independence, at the very beginning production of the both fresh and processed fruits and vegetables declined due to disintegration of the centralized system of procurement and internal conflicts, which continued until 1998. Gradually, however, cultivation of the gardens and vineyards has been resuming. Fruit and vegetable areas are gradually expanding in home gardens and private farms while larger farms concentrate on wheat and cotton production.

87. There are nevertheless considerable problems hampering the development of agricultural business in Tajikistan. These include:

- Inability to reorient production and harvest processing to the new markets;
- Increased competition in export markets;
- General deficit of investments, both in production and in processing;
- Restrictive geographical/climatic factors;
- Business barriers of technical and non-technical character;
- Lack of guarantees on land utilization/ownership rights;
- Lack of security (mortgage);
- Underdeveloped agriculture credit sector;
- Lack of mid-term and long-term financing[20]; and
- Out-of-date production and storage facilities.

88. These and other problems have caused a serious loss of confidence among potential domestic and foreign investors who are unwilling to participate in such an unstable and unpredictable market. While a small percentage of production is traded over larger distances, most production is therefore for household use or for barter with neighbours; the economy for local farmers is a 'subsistence economy'. The marketing structure is very primitive and has not yet developed. Farmers are unaware as to how to sell products to distant markets and gain premiums by the use of market chains.

89. A project emphasis on agro-enterprise development (both nationally and internationally and perhaps in the area of certified organic fair-trade fruit and nut products) will thus seek to increase farmers' financial returns and ensure meaningful community-based participation by making agro-biodiversity more valuable locally and nationally through successful and sustainable agro-enterprise development.

PART 2: Strategy

2.1 Project Rationale and Policy Conformity

2.1.1 Fit with GEF Focal Area Strategy and Strategic Programmes

90. The proposed project is aligned with the GEF's strategic objectives in the biodiversity focal area and its objective to mainstream adaptation into the other GEF focal areas. The project has been designed in line with Biodiversity Strategic Objective 2 (BD2), Mainstreaming biodiversity in production landscapes/seascapes and sectors and the Operational Guidelines for the Strategic Priority on Adaptation (SPA). The BD2 element of the project will pursue the objective of conserving threatened local plant genetic resources and will address the main barriers that preclude the recovery and sustainable use of valuable endemic plant agro-biodiversity in Tajikistan. The SPA element will help ensure that measures are undertaken to manage the climate change risks in achieving agro-biodiversity conservation objectives. Additionality, of this support is determined by the accruing cost of considering climate change factors into the agro-biodiversity conservation strategy that is based on homologue approach to be employed by the project. Measures include strengthening the resilience of agro-ecosystems in the face of climate change and strengthening the adaptive capacity of communities dependent on these agro-ecosystems. The project will contribute to achieving the main indicators under the UNDP-GEF BD2 strategic objective, namely: (i) Mainstreaming biodiversity into the agriculture sector; (ii) More than 1.5 million ha in production landscapes contributing to biodiversity conservation and sustainable use of its components; (iii) Supporting the incorporation of biodiversity aspects into sectoral policies and plans at both national and sub-national levels and into the implementation of regulations; (iv) Mainstreaming biodiversity and climate resilience into UNDP's development assistance in Tajikistan as represented by the US$ 20 million

[20] Financial organizations are concerned about dependency of fruit productivity on climatic conditions; the possibility of low harvests or loss in mountainous areas means that they will only offer short-term credits.

Communities Programme; and (v) Contributing to the improved livelihoods of rural communities in Tajikistan based on sustainable use of agro-biodiversity.

91. The project is fully in line with the GEF's approach to mainstream adaptation into other GEF focal areas: "Vulnerability and adaptation to climate change are becoming increasingly more relevant components in project across all GEF focal areas … At the end of the pilot, adaptation should be fully mainstreamed into the GEF portfolio". The project will also contribute to meeting the targets of the GEF Strategic Priority "Piloting an Operational Approach to Adaptation" (SPA), described in the GEF Council Document GEF/C.23/Inf.8. The project is fully in line with the incremental reasoning for SPA projects: "… activities that increase resilience to climate-related stresses and adverse impacts combined with other activities that need to be implemented to address current (not necessarily climate-related) stresses that cause biodiversity loss". Consequently, the incremental cost for SPA projects might be expected to be proportionally higher than for more traditional (non-SPA) GEF projects. In practice, the double increment associated with the present project will be blended into a single grant.

92. The project is also consistent with the objectives of the GEF Small Grants Programme to secure global environment benefits in the GEF focal areas through community-based approaches that also generate local benefits. Since its inception in 1992, SGP has occupied a strategic niche within the GEF by supporting community-based initiatives that respond to GEF criteria and objectives.

93. This groundbreaking and mutually reinforcing partnership of the SGP and the project will increase the impacts of both programmes in the GEF focal areas. The inputs and technical oversight contributed by the SGP National Coordinator and National Steering Committee will strengthen the project's focus on the delivery of global environmental benefits while generating sustainable livelihoods; while SGP will gain opportunities to scale up successful interventions through collaboration with the present project. It is proposed that SGP will sit on the project advisory board of the present project, and in turn, that the National Steering Committee includes a member of the project advisory board as well as recognized national specialists in the fields of agro-biodiversity conservation, community adaptation to climate change, and agro-enterprise and SME development.

2.1.2 Rationale and Summary of GEF Alternative

94. Cost-effectiveness has been carefully considered in developing the project proposal with respect to the choice of strategic priorities and their relative importance; the need to create significant and sustainable changes that can be replicable in other parts of the country; and the funding allocated to key project outcomes. Three broad approaches were identified for investing GEF resources in efforts to address agro-biodiversity loss and build the adaptive capacity of rural communities to withstand shocks and impacts associated with climate change in Tajikistan: (i) An approach focused on on-farm cultivation, conservation, and sustainable use of local agro-biodiversity; (ii) An approach focused on the conservation of agro-biodiversity within a protected areas framework; and (iii) A mainstreaming approach that combines policy reform and implementation; institutional and individual adaptive capacity development; and development of agro-enterprises based on local agro-biodiversity.

95. These approaches are based on the understanding that conservation of land races alone is an important but incomplete component of agro-biodiversity. Conservation of wild relatives, where the incentives to manage these resources are less tangible or less easily realized when compared with land races and local varieties that have very immediate benefits, is also needed. To conserve agro-biodiversity, a multi-disciplinary approach is needed that combines components of research into wild relatives (survey, identification, ecology, etc.), in situ management and farming systems (regional ecosystem planning), farm systems and marketing of the products and enabling the development of agro-enterprises. No one organization can address all of these issues; and placing all of these responsibilities upon a project would make it extremely unwieldy. Needed are appropriate partnerships with organizations that have these capabilities and assigning responsibilities to different stakeholders (local government, NGOs, and others).

Within these parameters, an initial assessment of these three broad-scale approaches yielded the following conclusions:

96. An approach focused solely on the on-farm conservation of selected local agro-biodiversity would assist farmers and communities to identify "popular" cultivars and thus could generate financially attractive agro-enterprises that could reduce poverty. As outlined above, selective conservation could reduce the effectiveness of conservation that should seek to conserve the whole, varied gene pool that may have (genetic) characteristics not yet identified, but which could be of global importance and value locally and globally, particularly in light of climate change.

97. An approach focused on the protection of agro-biodiversity within established protected areas was not considered possible. The protected areas system in Tajikistan is scattered, with pockets of small marginal areas located in remote mountainous regions. While globally significant agro-biodiversity does exist in these protected areas, the majority is found in the productive home gardens and subsistence plots of local farmers and communities; or in small areas of land near villages, which cannot be practically or politically managed efficiently as protected areas. The project calls for the development of adaptive capacity for local and national institutions to cope with climate change. The location of the protected areas in Tajikistan thus precludes collaboration and partnership with stakeholders given their isolation, inhospitable climate, and consequent lack of inhabitants.

98. A mainstreaming approach centered on the dual approach of ex situ and in situ conservation of globally significant agro-biodiversity using the Homologue model developed by CIAT (as explained above), and the employment by farmers of that biodiversity to reduce their vulnerability to climate change and generate income, was deemed the most suitable and cost-effective option.

99. In terms of real, as opposed to relative cost-effectiveness, GEF funding has the following attributes: (i) Supporting the reform and implementation of select policies, legislation and regulations, with high net conservation benefits over 1,000 hectares at an estimated cost of US$30 per hectare, due to the very low level of baseline agro-biodiversity conservation currently underway in Tajikistan; (ii) Supporting the capacity development of stakeholders including farmers, community groups, and farmers' and business associations as well as partner institutions such as local and national authorities and other agencies, with potential impact over 5,000 hectares at an initial cost of US$30 per hectare; (iii) Facilitating the development of small agro-enterprises by farmers and communities to serve as alternative income (estimated US$200,000 in the second year rising to US$1 million sales in the final year of the project) and providing a buffer against the consequences of climatic shocks and related natural disasters; and (iv) Leveraging the existing baseline of data gathering activities and putting them to service in achieving conservation objectives – a highly effective use of resources.

100. The project is innovative both in national terms and in international terms: At the national level and given the nascent state of the market economy in Tajikistan and low governance capacity, there have been few attempts to use governance reforms or market development to conserve biodiversity or even to conserve natural resources. The project will attempt to do this. The project will seek to strengthen regulatory frameworks to encourage agro-enterprise development and good governance by complementing ongoing 'market' and 'governance' reform initiatives under the Communities Programme. The project will use a bottom-up approach to policy development and institutional development; allowing project lessons at the grass-roots to point clearly at required national policy and institutional changes. This approach will ensure that future policy/institutional developments are responsive to actual needs rather than based on national level trends or international advice. Although this approach has been tried and tested internationally many times for poverty alleviation and rural development, this will be one of the first times it has been implemented for biodiversity conservation through a GEF project in Central Asia.

2.2 Project Objective, Outcomes and Outputs

101. The objective of the project is "Globally significant agro-biodiversity conservation and adaptation to climate change are embedded in agricultural and rural development policies and practices at national and local levels in Tajikistan."

102. The project seeks to remove the barriers to conservation and adaptation of the globally significant agro-biodiversity of Tajikistan by a combination of interventions targeting capacity development (at systemic, institutional and individual level), in situ and ex situ agro-biodiversity conservation measures and market development in support of socio-ecological adaptation to climate change. Managing for socio-ecological resilience recognizes the opportunities provide by effectively managed agricultural ecosystems in supporting the environment and dependent communities to absorb shocks, regenerate and reorganize so as to maintain key functions, economic prosperity, social wellbeing and political stability. Strengthening the capacity of farmers to anticipate and plan for climate related changes while buying time for ecological recovery through effective local ecosystem management creates powerful and cost-effective opportunities for meaningful action to cope with unavoidable climate change impacts.

103. Ex situ conservation of the Poaceae family is relatively straightforward and has already been the objective of collections made by various research organizations (e.g., CGIAR Centers and national bodies such as the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) and US Department of Agriculture) concerned with the improvement of major food crops such as wheat, barley, forages and legumes. Seeds of wild relatives of these crops are straightforward to collect and conserve in gene banks at low temperature, with periodic growing out to ensure their viability. A much more intractable problem is in situ conservation of recalcitrant species, i.e., species that cannot be conserved as seeds at low temperature. The in situ conservation proposed in this project is therefore a modification of the specialized nursery methodology, making use of the locally adapted germplasm currently grown in home gardens throughout the country.

104. The project will concentrate on the conservation in situ of perennial germplasm and understanding the impact of climate variability by using the Homologue Approach, where the climates that will be encountered in 2050 already exist at lower altitudes. The project will select sites using an environmental agro-climatic model such that sites will be paired with their year 2050 homologues. For each village selected, another village will be chosen to represent its year 2050 climatic homologue. For example, by interpolation on the data of the 18 global circulation models, the temperatures of Khishkat, in the Zeravshan Valley in central-west Tajikistan, will increase by about 3 degrees by 2050. The adiabatic lapse rate is 6°C per 1000 m, so a site 500 m lower than Khishkat today has a temperature climate the same that Khishkat will have in 2050. That is, Khishkat at 1440 m altitude will have roughly the same temperature regime that Pendzhikent, at 990 m altitude, has today. A census on varieties growing at Pendzhikent will show what adaptation will be required at Khishkat over the next 40 years. Homologue approach can be applied to determine which present day communities will be like our selected communities in 50 years time in the face of climate change. Those identified communities and farmers would then also get to see and gradually prepare for their futures in terms of agro-biodiversity. Germplasm maintenance and exchange will allow farmers to gradually adapt to new conditions via the introduction of cultivars from homologous sites. People from, for example, site 1a will be able to visit and learn from site 1b, which will represent conditions at site 1a in the year 2050. The 18 GCMs provide best bet estimates of how climate will change at the selected sites. The visitors will see their own futures; they will learn what they will and will not be able to grow; they will be able to see if conditions are the same, worse, or better, and in which ways, and establish what they will have as options in terms of agro-biodiversity. Over the next decades, they will be able to obtain the germplasm that they will gradually need more and more. Forewarned through the project use of Homologue approach, farmers and communities will be forearmed. Under the Homologue Approach, the initially selected communities can also "donate" to the future; and in so doing conserve their present agro-biodiversity by improving the futures of their own as well as other communities. As a result of the application of the Homologue

Approach, it is anticipated that long-term adaptive measures will include effective policy implementation for the conservation of agro-biodiversity, capacity building for improved resources and agricultural management, and for management, largely in situ, of genetic resources. A project emphasis on agro-enterprise development (both nationally and internationally and perhaps in the area of certified organic fair-trade fruit and nut products) will seek to increase farmers' financial returns and ensure meaningful community based participation. These measures are described below.

105. It is important to caution that this is merely an example to show how the homologue climate concept works, and that formal application of the concept will be used to select homologous villages in the initial months of the project. Different fruit and nut species may require different conservation solutions. The major difference will be whether a particular species is recalcitrant or not. It is prudent to proceed on the basis of the precautionary principle and assume that all species are recalcitrant unless the project identifies otherwise.

106. The project will work with the National Biodiversity and Biosafety Centre; UNDP's Communities Programme; and the GEF Small Grants Programme21. Partnership with the National Biodiversity and Biosafety Centre is pivotal given its responsibility for advising on the policy and implementation of programmes and projects related to biodiversity. NBBC is presently charged with the development of project documents related to the conservation and rational use of biodiversity; with guiding implementation of global, national and regional Strategies and Action Plans for the conservation and use of ecosystems, biological and genetic resources and protected areas; and with the development of recommendations for the use of biological resources reserves. This project will enable executive and field staff of the NBBC to work more closely with local communities on in situ conservation and use of agro-biodiversity in the face of climate change, and to feed this expertise and experience back into national policy and planning.

107. The project components, outcomes and outputs are described below.

Component 1: Agro-biodiversity conservation and adaptation to climate change through supportive policy, regulatory and institutional frameworks.

108. Outcomes include: (i) Agro-biodiversity friendly and climate resilient policies and practices embedded into national policy and local development plans. The importance of ABD conservation and its potential role for climate adaptation and future food security will be properly understood by policy makers at national and local levels). The focus will be on agricultural policy and related sectoral (including forestry) policies; (ii) A strengthened national extension service providing farmers with knowledge based extension technology to promote farmer varieties (and conservation of ABD within current production systems) and promote climate resilience; and (iii) An extension package in place in 4 pilot (each using one important crop, such as apricot, almond, pistachio, walnut, pomegranate, as an entry point to ABD friendly, climate resilient production practices. The area to be covered is approximately 1.5 million hectares. Crop combinations may be used depending on stakeholder interest. At each site, lessons will be learned and used to finalize the model for national application and expansion to cover other crops. The policy component of the project will further examine existing legislation and policy in Tajikistan, assess their effectiveness, and identify strategies to strengthen appropriate policy implementation that supports agro-biodiversity conservation and use, and increased socio-ecological resilience to climate change. Specifically, it will promote policies that encourage farmer adoption of select fruits and nuts, and

[21] The GEF Small Grants Programme in Tajikistan will disburse US$250,000 per year on behalf of the present project for small grants up to $50,000 to NGOs and CBOs relating to activities under Outcome 2 and 3. This amount is additional to the SGP Core funds for the programme. The first year of an SGP programme is automatically $150,000; therefore Tajikistan would receive a total of $400,000 in the first year. Over the five- year life of the project, it is expected that the SGP will therefore disburse a total amount of US$1,250,000 in small grants. Further details on the proposed implementation arrangements can be found later in this document.

conservation of (climate resilient) wild crop relatives. The outcomes will be achieved through the following outputs:

109. Output 1.1: Agrobiodiversity conservation and adaptation principles are mainstreamed into local and national agricultural, trade and industry policies and programmes. The project will go beyond simply cataloguing policies and agency responsibilities. The project will first work with stakeholders and partners (including community representatives, *Jamoat* Resource Centers, national and international NGOs, local and national authorities and the private sector) to review, assess and discuss existing policies. The objective will be to identify policies that could – through effective implementation – result in *ex situ* and *in situ* agro-biodiversity conservation and use in agro-biodiversity based enterprises beneficial to local communities and to the country as a whole as it faces the future effects of climate change. In order to help ensure coordination, selected policies and regulations will be discussed in inter-sector and inter-agency fora. A goal will be to generate consensus relative to concrete policy implementation at the project sites. This horizontal dialogue among agencies and coordinated implementation at the local level will take a learning approach, gradually identifying and building on both positive and negative lessons learned. Where policy gaps are identified, the group will propose modifications relevant to project sites through the use of bye-laws and decrees that govern the implementation of national policy at sub-national levels.

110. Output 1.2: Extension package for promoting climate resilient farmer varieties developed and integrated into the national extension service package and delivery system. The Project will work closely with existing farmer extension services and community resource centers to enhance their capacity for service delivery to farmers. The staff will be trained and equipped with skills and necessary material to advice farmers on adaptive measures on the ground.

111. Output 1.3: Capacity and accountability of local government to enforce policies, sectoral guidelines and spatial plans in support of agro-biodiversity conservation and adaptation to climate change increased in 4 pilot areas. The project will need to mobilize the political will of all key responsible agencies and identify national to local policy "champions". In such a light, partnerships with state institutions, including the newly established and built National Center for Genetic Resources, will be explored to support *ex situ* conservation measures. Policy implementation will seek public and private and government and end-user participation and buy-in.

112. Output 1.4: CSOs and local government in pilot areas have skills to actively support communities to integrate ABD conservation into farming systems, build adaptive capacity, and link such production to private sector markets. The building of ABD value chains will require careful market analysis at from local to international levels and the inputs and expertise of persons with skills in value chain development. The project will enable and promote the development of financially attractive agro-enterprises that have the sought after benefits of ADB conservation and increases in local social and economic welfare.

113. Output 1.5: Capacity building programme implemented to ensure institutions charged with responsibility for managing the ex and in-situ gene banks are effective. The project will both draw upon and complement national expertise and experience and the past and present efforts of the International Agricultural Research Centers that have worked/are working in Central Asia on *in situ* and *ex situ* genetic conservation to increase the capacity of appropriate local, regional, and national partners.

114. Output 1.6: ABD policies applied in four pilot areas & adopted in a minimum of 40 home gardens/farms supporting implementation. The project will work to ensure that selected policies that encourage and allow sustainable community use of natural resources – especially agro-biodiversity – are applied to equitably benefit end-users and community agro-enterprises.

115. Output 1.7: Local level producer societies for specific crops (such as fig, pistachio, walnut, pomegranate, apricot, almond, mulberry) promoted as a mechanism of incentives for adoption

(linking farmers to markets, and credit). The project-supported agro-enterprises will be developed carefully over the life of the project to ensure that farmers do not eventually face losses stemming from over-production or unrealistic expectations associated with particular crops and products. Work at the international and national levels will assess opportunities and constraints for solid, best-bet agro-enterprise development.

116. Output 1.8: Development of long-term strategy for conservation and sustainable use of ABD and adaptation to climate change. The project will assess site-level policy implementation in the final project year. Based on this assessment, a long-term (10-year) strategy for the conservation and use of agro-biodiversity in the face of climate change will be developed. Such a strategy will include agro-biodiversity conservation targets for each ecological, geographical or climatic zone of Tajikistan, and will be relevant to (among others) the framework of the overall National Action Plan and Report on Building Capacity to Implement Commitments on Global Environmental Conventions.

Component 2: Improved capacity for sustaining agro-biodiversity in the face of climate change.

- The project will implement the proposed Homologue Approach, where sites will be selected to represent present and future (year 2050) scenarios using the Homologue model developed at CIAT combined with GCMs. Sites first selected will have substantial agro-biodiversity; while matching sites will represent the same sites in 2050 in terms of climate, soils, and topography. A variety of training and skills development will include training of national partners on climate and crop modeling; the development and implementation of community-based participatory methods for *ex situ* conservation (building on traditional knowledge), especially of recalcitrant materials (i.e., seed that cannot be stored *ex situ*); training for communities in seed and germplasm management methods; education and awareness about local agro-biodiversity and the role it can play in facing climate change and managing food security; facilitation of community based seed and germplasm management methods based on the findings of the Homologue Approach. Efforts to raise awareness about the importance of the conservation and sustainable use of agro-biodiversity in light of climate change will include stakeholder workshops and collaboration with the national and local media, and communication networks established by other projects and programmes (such as the EC/TACIS SENAS programme).

117. The project will work in close collaboration with the GEF Small Grants Programme under Outcome 2 to support in situ and ex situ conservation of globally significant agro-biodiversity. Germplasm will be made available to global crop improvement programmes. Partnerships with international research organizations with expertise in ex situ conservation will be developed (with, for example, ICARDA and the International Maize and Wheat Improvement Centre (known as CIMMYT) in the CGIAR system and the USDA and CSIRO), and lessons emerging from other relevant regional and national projects will be incorporated into the project strategy.

118. Outcomes under Component 2 are as follows: (i) Ex situ (gene bank) conservation of globally significant ABD established to protect wild relatives of important crops (including walnut, pistachio, pomegranate, fig, mulberry, apricot, almond, among others); (ii) In situ conservation of wild relatives of globally significant ABD in a minimum of 40 home gardens/farms in 4 project areas covering approximately 1.5 million hectares; (iii) Homologue Approach implemented in 4 project areas to enable farmers to adapt their current production practices to current and future climate risks and variability; (iv) Financial incentives (grants, microcredit) in place to attract and keep stakeholders committed to conservation of climate resilient ABD (Payment for Ecosystem Services). Outputs under Component 2 are as follows:

119. Output 2.1: Farmers/communities in the 4 pilot areas provided with skills and knowledge to increase farm productivity (and food security) using climate resilient agro-biodiversity friendly practices. The project will first build on local traditional knowledge in the management of the targeted agro-biodiversity of fruit, nuts, and value added products. The project will also link farmers to additional

methods and techniques, as needed and appropriate. The provision, multiplication, and care of planting materials – both seed and vegetative – will likely be needed; as may be techniques such as proper pruning, marcotting, thinning, and practices that encourage fruit set and development.

120. Output 2.2: Community-based participatory methods (building on traditional knowledge) developed and implemented for ex situ conservation especially of recalcitrant materials (seed that cannot be stored ex situ). CIAT will provide inputs in terms of long-utilized participatory approaches. Approaches include relatively rapid and effective work with communities (as a group) on diagnostics, eliciting traditional practices and knowledge; and developing wide participation in both ABD use and management and in agro-enterprise development via fully participatory decision-making, accountability, and ownership by all participants. Conservation efforts will build on the pride that people have for their perennial crops that we observed in the field. The project will work with local people and communities to identify and geo-reference ABD resources; and to gradually build confidence in intra- and inter-community germplasm exchange that will be needed as climate changes towards 2050.

121. Output 2.3: Tajik ABD germplasm made available to national, regional and global crop improvement programmes. Guidelines will be developed for the access to and use of local agro-biodiversity by international crop improvement programmes seeking to develop new materials adapted to future conditions brought about by climate change; and for non-breeding programmes (e.g. for agro-enterprises, direct use, environmental rehabilitation, and use under conditions brought about by climate change).

122. Output 2.4: In-situ gene banks established in 40 home gardens/farms in 4 pilot sites, including collection, geo-referencing, identification, characterization, and/or germplasm-banking of prioritized ABD (largely fruit and nuts). A botanic survey within the project sites will be conducted at the start of the project. Farmers who select and multiply plants will be identified and their practices recorded. Modern databases will support and enhance access to and exchange of genetic materials (saplings, seed, vegetative stock) among farmers and between farmers and researchers.

123. Output 2.5: Climate change modeling and crop modeling in order to deliberately select appropriate homologue sites that represent present and future conditions. Project activities will be implemented together with farmers, farm households, and local communities. Site location choices will be based on concentrations of the best local varieties of fruit and nut crops and proximity to farm households and settlements, and to forest areas. Farmers' knowledge of the materials and management practices, and the willingness and interest of the farmers to participate in the project, will also be considered. In addition, work will be undertaken with local and national partners to manage the effects of climate change at the local level.

124. Output 2.6: Sustainable management strategies for the 4 project areas and areas certified as sources of climate resilient wild crop relatives. The project will work with local communities, and local, regional, and national governments to optimize the use and management of common resources – open-access areas and their respective plant genetic resources. The project will encourage and enable local participation in the finding and identification of wild relatives; and in building awareness as to the value of such germplasm.

125. Output 2.7: A network of databases established on materials maintained *in situ* and *ex situ*. These will be developed for ease and accessibility of information management. The knowledge of communities regarding the local to global value of their agro-biodiversity and on germplasm exchange among communities will be enhanced.

126. Output 2.8: Awareness campaigns (partnership with JRCs and GEF SGP) address conservation of ABD and build adaptive capacity to climate change. This output will involve campaigns with project communities to build "pride" agro-biodiversity and the ecosystems on which such diversity depends and by providing scenario information regarding the future impacts of climate change. The project will work

with local schools, universities, local authorities, *Jamoat* Resource Centres, and the private sector. Assumed is that awareness of the value of agro-biodiversity will increase as human welfare is improved through incomes generated through national and international agro-enterprises. The climate change component will be addressed by "downhill" visits where visits will be fomented of producers to their 2050 Homologue site (from Khishkhent to Pendzhikent for example) so that they can see at first hand what the problems are likely to be and how people currently cope with them.

Component 3: Enabling environment for market development for agro-biodiversity products developed.

127. The project seeks to generate rural income by diversifying into high-value products and based on a dynamic rural sector. New enterprises, technological and institutional innovations, and new partnerships among the state, the private sector and civil society will provide opportunities for the development of new value chains. It will identify and promote promising market incentives (underpinned by policy and capacity support under Components 1 and 2) to increase trading in agro-biodiversity friendly products in order to encourage farmers to adopt sound production practices. Care will be taken to avoid incentive measures that may promote unsustainable behavior (such as increased demand due to availability of markets leading to over-harvesting). The project will build on the suite of products currently encountered in Tajik markets: a wide range of dried fruits, nuts, sweet mulberry flowers, mulberry molasses, as well as new fruit and nut based products. While a wide range of fruit, nut, vegetable, and forage species exists it would not be prudent, or even possible, for the project to attempt to preserve the whole of the material under threat in Tajikistan. The objective is to demonstrate in a concrete way that if selected germplasm is seen by the population as complementing their livelihoods, it will be in their interests to contribute to its conservation, rather than continue to exploit it unsustainably. The project will thus likely restrict its activities to no more than five species, and preferably four; for example, apricot, pistachio, almond, and fig. The project team will confirm these species or make alternative recommendations.

128. Successful enterprise development and value chains that reach international markets will face challenges having to do with quality control, tariff structures, and other regulatory considerations; as well as market demands for timely and consistent production at adequate volumes. Communities will need adequate information, organization, business capacities, and appropriate financing. These needs will be met in part by the establishment of business advisory centers, which will provide extension services and advice to farmers on a needs basis. Three key players will be involved in the development of markets: farmers, consumers and support system actors (owners of businesses, policy makers, extension, research, NGOs and CBOs, seed producers and other service providers). An agro-enterprise development specialist provided by the project will be critical to this part of the project.

129. Specific outcomes under Component 3 will include: (i) Enabling environment for agro-biodiversity based agro-enterprise development established; (ii) International and national demand for 4 ABD friendly and climate resilient products increased; (iii) Climate resilient ABD-friendly products available and branded in local and international markets; (iv) Business and financial capacity in place to produce ABD friendly products and services in 4 pilot sites; and (v) Increased and stable income from certified and non-certified products grown in ABD friendly areas in 4 pilot sites. Outputs under Component 3 include:

130. Output 3.1: Capacity building programme to ensure institutions charged with responsibility for supporting development of agro-biodiversity based agro-enterprises are effective. This will include assessment of opportunities and constraints related to value chain development; participatory agro-enterprise development with local communities; strengthening capacities of JRCs and related MFIs to support and provide credit to farmers and communities; work on developing the business skills of regional Business Advisory Councils, Entrepreneurs Associations, and Farmers Associations; building the capacities of producer organizations to take advantage of existing and new market opportunities; strengthening the capacity of relevant government agencies to build an enabling environment for agro-enterprises in Tajikistan (e.g., through certification for organic production, and for international quality

standards); and working with the Ministry for Economy and Trade to attract foreign and private investment to support nascent markets.

131. Output 3.2: Identification, differentiation and marketing programs for certified products from 4 pilot areas and non-certified ABD climate resilient products grown, developed and implemented through a supply chain approach. Products currently produced for internal markets will be surveyed in terms of volumes, pricing, timing and consistency of production, quality control, transport, infrastructure, processing and value added, marketing, the role of middlemen/intermediaries and the structure of current value chains. Potentials for demand and regulatory structures for such products in developed countries will be assessed. The project will then work with communities to develop new agro-enterprises based on innovations in traditional products and on new value chain development, including the development of business advisory centers to provide extension services and advice to farmers. Additional assessment of market actors and their roles, consumer demand, possible partners, government regulations, development of exports, marketing capacities, and analysis of risks and opportunities will be undertaken.

132. Output 3.3: International marketing campaign (trade fairs, online) to establish Tajikistan as an international source of ABD-friendly climate resilient products for consumers concerned about the point of origin, sustainability and genetic heritage (i.e. the importance of crop wild relatives in the face of climate change) of food. A marketing campaign will ensure optimum international exposure and unique branding for high quality Tajik products in favorable markets. An emphasis on the role of genetic heritage of globally significant agro-biodiversity in the face of climate change combined with fair trade and organic messaging should provide an important marketing opportunity in North American and European markets, among others.

133. Output 3.4: Crop certification established for products increasing farmer's ability to sell products and services at a premium, verified and monitored by Protocol to verify and monitor compliance of certification. Crop certification and adherence to international standards and requirements will enable Tajik farmers to sell their products at a premium, providing a crucial incentive for alternative and adaptive land use by small farmers and generating sustainable livelihoods based on climate resilient agro-biodiversity.

134. Output 3.5: Seed grants (through partnership with GEF Small Grants Programme) support development of agro-biodiversity based agro-enterprises at each site. The project will work closely with the GEF Small Grants Programme for Tajikistan, which will commence in mid-2009. SGP grants will complement the micro-credit provided by the UNDP Communities Programme through Jamoat Resource Centers. It will provide alternative financing and seed capital in support of a variety of community-based development of agro-enterprises. Given high levels of poverty in project areas, access to grants as a first step, and proceeding to concessionary/soft loans as a means to establish small and medium enterprises (SMEs), may be a prudent approach to insure farmers against losses in case an initiative fails to thrive.

135. Output 3.6: Increased funding available for start-up initiatives and SMEs, provided by existing MFIs (supported by JRCs/UNDP Communities Programme) to ABD agro-enterprises. The UNDP Communities Programme will play an important role, through the JRC-related micro-finance institutions in providing micro-credit, business development assistance, and extension services to help farmers establish sustainable agro-enterprises based on local agro-biodiversity. All micro-finance activities of the project will be done through existing Micro-Finance Institutions (MFIs) that have received capacity development and skills building support from the UNDP Communities Programme. No new MFIs will be created as a result of this project. Existing MFIs, based in the proposed project territories, to be used by the project include: (i) "Imdodi Hutal" in Kulyab; (ii) "Rushdi Odii Zarafshon" in Zarafshan; and (iii) "Faizi Surhob" in Rasht. These institutions are self-sustainable and have been in operation for more than two years. UNDP's micro-finance schemes have existed since 2000. The reason for recent changes and establishment of the new MFIs was to address the changes in the legislation connected with the new "Law on Micro-finance Activities" approved in 2004. The portfolio of the MFIs established with assistance

from UNDP now totals more than US$ 4 million. All MFIs are sustainable and demonstrate good profit: in 2007 – over US$400,000; and in 2008 (January to September) – over US$250,000.

136. Output 3.6: Enhanced business advisory centers and JRCs support efforts to bring climate resilient ABD-friendly products to markets. The UNDP Communities Programme will assist local communities in establishing agro-biodiversity based agro-enterprises via micro-credit funding, business advisory centers, and extension services. Where micro-credit activities are already established, the project will provide additional resources that can only be used for activities related to the objectives of the present project. New guidelines for disbursement and management of loans relating to activities supported by the present project will be developed. This approach has been successfully used in other GEF projects (e.g. the Sustainable Land Management in Shartuuz and the Gissar Biodiversity Project). Where micro-credit is not available, the project will work with existing MFIs and *Jamoat* Resource Centers to establish funding lines and disbursement criteria. The project will thus provide technical assistance, financial support, and also seek to establish linkages to national and international NGOs active in the sector.

2.3 Project Indicators, Risks and Assumptions

137. The project indicators are detailed in the Logical Framework, which is attached in Section II, Annex A of this Project Document.

138. The risks facing the project and the mitigation strategy is detailed in Table 6 below.

Table 6. Risks facing the Project and the risk mitigation strategy

Risk	Risk rating	Risk Mitigation Strategy
National economic development stalls, and poverty strengthens in the project areas, thereby increasing pressure on natural resource base.	M	There is a realistic possibility chance that this will happen given the current global financial crisis and expected knock-on impacts on Tajik national economy. However, by focussing project activities at the site level, and working with the Communities Programme, the project should ensure that the economy develops adequately at the project sites, and this national risk can be managed effectively by the project strategy.
Sustainable use of biodiversity does not lead to sufficient economic gains at the project site, or the gains do not flow to the natural resource users who are currently degrading biodiversity. Hence, local poverty persists and poor people continue to unsustainably use biodiversity.	M	The project strategy attempts to address this medium risk head-on, by developing new products, developing market-based instruments and developing markets for these products. Moreover, by working with the Communities Programme (an existing democratic and representative mechanism), the project will ensure that the benefits are equitably shared
Lack of access to credit for farmers in rural Tajikistan continues to pose a risk to the development of new practices and techniques to increase the economic benefits from agro-biodiversity.	M	No GEF funds will be used for micro-credits. The project will work very closely with UNDP Communities Programme which has as a key component the provision of support to credit and micro-finance initiatives. Through the existing revolving funds, thousands of villages have gained access to micro-loans. Until present, the pay back rate has been 100%. The project will ensure that credits are available for agro-biodiversity-friendly practices and products. These links have been already established as UNDP Communities Programme is the foundation of UN technical assistance

Risk	Risk rating	Risk Mitigation Strategy
		for Tajikistan in support for the implementation of the Poverty Reduction Strategy and all the UNDP projects in the country are aligned with this Programme. In addition the project will ensure that the UNDP policy on the "Use of Financial Instruments for Global Environmental Management" is followed in further design of the activities to facilitate the access to credit.
Land ownership and land access rights are not sufficiently clear. Hence the project strategy and incentives developed by the project are not effective.	M	The land certificate, ownership and access process is not complete. However, by choosing to work in areas where the Communities Programme is already active, where this issue has been overcome, this risk will be mitigated.
National policy does not quickly adopt the lessons learnt from the demonstrations at the sites.	L	The project will use existing mechanisms (e.g. through the Communities Programme, NBBC) to ensure lessons learnt are transferred to national level. Where necessary, the project will complement existing mechanisms by developing its own bottom-up transfer mechanisms – e.g. working groups, seminars, or lobbying on specific issues.
Project successes are not maintained after the project, and are not replicated to other sites.	L	The project strategy focuses on (i) developing realistic polices based on grass-roots experience; (ii) working with the existing Communities Programme; and (iii) ensuring there are economic benefits. Together, these elements should ensure the sustainability and replicability of the project successes.
Climate Change: Current vulnerability to climate driven impacts will pose threats to the stability of the agro-ecosystems, crop failures and will result in increased food insecurity	Medium	The project is designed to address the impacts of climate change on agro-biodiversity. As such will embed climate resilience thinking in the national policies, local development plans and will develop the capacity of farmers to better plan, so as to take into account the potential consequences of climate change. In addition, preliminary climate and crop models indicate that the effects of climate change on relevant agro-ecosystems will not be too severe.

2.4 Incremental Reasoning and Expected Global, National and Local Benefits

139. The collection, characterization, and *ex situ* and *in situ* conservation of agro-biodiversity will make genetic material available to global crop improvement programmes, resulting in better crop adaptation in the face of biotic and abiotic stresses – especially including those related to climate change. The conserved agro-biodiversity and its global and problem-solving potential thus comprise the project's Global Environmental Benefits. Domestic benefits will include broad stakeholder participation in conservation of fruit species, availability and accessibility of genetic stock for development of new robust and resilient varieties, stability in agricultural production, and increased incomes and well being from agro-enterprises based on local fruit and nuts and associated value-added products. While climate change will bring higher summer temperatures and increased potential of flooding, agro-enterprises built on local agro-biodiversity may represent a singular and important opportunity within future scenarios. This incurs additional cost to agrobiodiversity conservation strategies and therefore, comprises the project's double

increment reasoning. Thus, providing the tools and methods to conserve and sustainably use genetic diversity will help to strengthen the national agricultural economy, eradicate poverty in the region and enable Tajikistan – from the national to local levels – to adapt to climate change and offset related shocks.

140. The present project addresses the main barriers that prevent the country from addressing threats, including climate change, to globally significant agro-biodiversity: (i) Systemic and institutional capacity weaknesses; (ii) Current coping measures and capacities of the rural communities are inadequate as climatic irregularities increase in frequency and intensity; and (iii) Market-related barriers.

141. Key baseline programmes and activities that seek to enable the conservation and sustainable use of Tajikistan's globally significant agro-biodiversity in the face of climate change comprise the 2007-2011 World Bank/GEF Central Asia Transboundary project "Biodiversity Conservation of West Tien-Shan to conserve unique and threatened ecosystems of the West Tien Shan in Kazakhstan, Kyrgyz Republic, and Uzbekhistan and to strengthen and coordinate national policies and regulations". The project, with funding of US$1,500,000, focuses on ecosystems and species level diversity in protected areas and is complementary to the proposed project where the target is common wild fruit species in forest reserves. It is managed by the Committee for Environmental Protection of the Republic of Tajikistan in coordination with the Ministry of Emergency Situations of the Republic of Kyrgyzstan. In addition, the 2006-2011 GEF-funded project "Demonstrating new approaches to Protected Areas and Biodiversity Management in the Gissar Mountains as a model for strengthening the national Tajikistan Protected Areas System" (US$1,100,000) and the GEF-funded 2007-2011 "Demonstrating Local Responses to Combating Land Degradation and Improving Sustainable Land Management in South-west Tajikistan" project (implemented by the World Bank with US$1,200,000) are relevant, given their emphasis on biodiversity conservation and the development of local responses to combat land degradation and improve land management.

142. Further, the US$20 million UNDP Communities Programme, as previously described, provides an important platform for the present project, providing access to a network of community-based organizations called *Jamoat* Resource Centers (JRCs). JRCs serve to link communities and institutions to discuss and address local development challenges. The UNDP Communities Programme will play an important role in enabling the present project to establish *in situ* conservation of agro-biodiversity, to strengthen partnerships and communication with rural civil society and the local authorities; to implement policies and practices piloted at the local level; and through JRC-related micro-finance institutions, provide micro-credit, business development assistance, and extension services to help farmers establish sustainable agro-enterprises based on local agro-biodiversity.

143. The baseline activities will contribute to the project objectives by: (i) Providing a basis for countrywide (and potentially regional) dissemination and replication of project experiences and lessons learned through government structures and through mechanisms developed within the framework of the UNDP Communities Programme; (ii) Providing existing institutions, infrastructure (buildings), equipment and personnel at national, oblast, rayon and local level; (iii) Providing existing working mechanisms and tried and tested approaches plus existing on-ground facilities and logistical capacities to effectively implement appropriate biodiversity conservation, climate change adaptation and agro-enterprise initiatives; (iv) Providing access to existing Jamoat level CBOs and MFIs, with support from the UNDP Communities Programme, with experience and capacity to implement credit facilities for community based activities, including experience with insuring not less than 20% cost sharing of members in local development initiatives; and (v) Providing existing in-country experience for undertaking demonstrations of *in situ* biodiversity conservation and sustainable livelihoods.

144. Despite the efforts under the baseline scenario outlined above, threats will continue to increase in scope and will lead to the further loss of agro-biodiversity. Such losses will decrease not only local, but global capacities to adapt to climate change via crop improvement using genetic materials from Tajikistan that are pre-adapted to a range of biotic and abiotic stresses. Agro-biodiversity protection and

conservation in Tajikistan needs to be supported by strong policy and legislative frameworks, and made more valuable locally and nationally through successful and sustainable agro-enterprise development.

The GEF Alternative

145. Under the alternative scenario, the GEF will complement the baseline by addressing gaps relating to the conservation and sustainable use of globally significant agro-biodiversity, which will in turn provide the basis for adaptation to climate change at both the national and international levels; and provide opportunities to generate new sources of demand and income for products derived from local agro-biodiversity. The GEF will build on an estimated baseline of approximately US$ 23,800,000. The total value of the GEF alternative scenario is US$ 27,800,000 (US$ 23,800,000 baseline plus US$ 4,000,000 of GEF and co-financing). Total co-financing (in-kind, cash and parallel) amounts to US$2,100,000, of which US$500,000 is considered cash co-financing from UNDP TRAC (core funding); US$780,000 is in-kind co-financing from the UNDP Communities Programme; US$570,000 is in-kind co-financing from NBBC; and US$250,000 is in-kind co-financing from communities and project stakeholders. The UNDP cash co-financing of US$500,000 will be targeted to related community and socio-economic aspects of the project, which though key supporting activities, are nonetheless of more national interest than global. The GEF increment equals US$ 1,900,000 and will focus mainly on the development of local level initiatives that demonstrate replicable approaches to address agro-biodiversity conservation, adaptation to climate change and innovative agro-enterprise development with national and global impacts, and the dissemination and replication of the experience and lessons learned throughout Tajikistan and Central Asia region.

Summary of costs

146. The total cost of the project, including co-funding and GEF funds, amounts to US$ 4,000,000. Of this total, co-funding constitutes 52.5% or US$2,100,000. GEF financing comprises the remaining 47.5% of the total, or $1,900,000. The incremental cost matrix below provides a summary breakdown of baseline costs and co-funded and GEF-funded alternative costs.

Incremental cost matrix

147. The incremental cost matrix is detailed in Annex B, in Section II.

2.5 Country Ownership: Country Eligibility and Country Drivenness

Country Eligibility

148. Tajikistan acceded to the Convention on Biological Diversity (CBD) on 29 October 1997. Tajikistan is fully eligible to receive financial assistance from UNDP and from GEF.

2.5.1 Country Drivenness

149. As described on pages 16-17, national priorities relating to the conservation of agro-biodiversity and adaptation to climate change are laid out in the inter-connected draft **Poverty Reduction Strategy Paper (PRS) for 2007-2009 and National Development Strategy (NDS) for the period up to 2015**. These national development planning documents set out that agricultural production and natural resources will be the backbone of economic development and poverty reduction over the coming decade. Specifically, these documents target environmentally sustainable development, including the need to promote the conservation and proper management of biodiversity and ecosystems and measures to promote adaptation to climate change. They call for the development of multi-sectoral plans for food security and the increased production and export of agricultural goods, balanced by efforts to preserve the gene pool of domestic and wild animals, plants and crops in the face of climate change. Other relevant government-led programmes include the Economic Development Plan for Tajikistan for the period to 2015 and the Public Investment, Grants and Technical Assistance Programme (PGI) for 2007-2009.

150. The proposed project supports the following national policies and plans relating to agro-biodiversity conservation and adaptation to climate change:

- The State Ecological Programme for 1998-2008 (1997);
- National Strategy and Action Plan for Biodiversity Conservation (NBSAP, 2003);
- National Environmental Action Plan (NEAP, 2006);
- National Action Plan of the Republic of Tajikistan on Climate Change Mitigation (NAP, 2003);
- National Action Plan and Report on Building Capacity to Implement Commitments on Global Environment Conventions (2005);
- Third National Report on Biodiversity Conservation in Tajikistan (2006);
- The State Programme on Protected Areas Development (2006) and the Law on Specially Protected Territories (2002); and
- Law on Nature Protection

151. The project will also contribute to meeting the objectives of the following national legislation on biodiversity conservation, climate change and development:

- The Law on Environmental Protection (1993);
- The Law on Protection and Use of Flora (2004);
- The Law on Ecological Expertise (2003);
- The State Program on Forestry Development (2006-2015) and the Forestry Code (1993); and
- The Law on Hydrometreological Activity

152. These laws outline the state policies on nature protection, the promotion of agro-biodiversity, the mitigation of climate change and the promotion of adaptation measures in the field of agro-biodiversity. These laws promote both investment in the agro-biodiversity sector (including the adaptation measures in the sector) and cooperation with international agencies and organizations, which are all considered essential to improving the situation in Tajikistan's biodiversity and climate change sectors. Specific reference is made to the development of a proper system for the management of agro-ecosystems and biodiversity conservation, and to the need for the development of a proper system for climate change mitigation (including adaptation measures). A number of additional laws, including the Law on Environmental Impact Assessment, are under preparation.

153. Some fifty environment-related implementing decrees and decisions have been issued since 1992, addressing a variety of environment-related subjects including some that relate to land management, Tajikistan's participation in international environmental conventions, regional environmental cooperation, setting up of specialized committees (e.g. National Sustainable Development Committee) and others.

154. These laws outline the state policies on nature protection and the promotion of agro-biodiversity. These laws promote both investment in the agro-biodiversity sector and cooperation with international agencies and organizations, which are all considered essential to improving the situation in Tajikistan's biodiversity sector. A specific reference is made to the development of a proper system for the management of agro-ecosystems.

155. Over the past few years, there has been a strong and increasing shift in the value of biodiversity in all fields of the economy, primarily in the agriculture sector. Accordingly, several documents were issued at the national level to improve biodiversity conservation in Tajikistan. The Government is implementing several projects and programs to increase the effectiveness and productivity of the agricultural sector. The proposed project will also contribute to existing activities of other donors and will ensure conservation of agro-ecosystems resources and their sustainable use.

2.6 Sustainability

2.6.1 Institutional sustainability

156. Experience in Tajikistan suggests that the most effective approach is to work mostly with local communities, and ensure that national and local administrative offices have the required capacity for

follow-up and support. This is the approach adopted through this project. The project will demonstrate practices that make sense in terms of socio-economics, ecology and biodiversity at the village level. In addition, the project will also invest significantly in building the national capacity to replicate these successes and strengthen the current policy and legislative framework in support of these efforts.

157. The project will not support the establishment of new institutions, but will focus on building the capacity of existing ones with clear mandates. For example, the project will work closely with the JRCs. The JRCs are a recognised, sustainable approach to development in Tajikistan. This project will ensure that the JRCs also account for agro-biodiversity conservation, adaptation to climate change and agro-enterprise development in their work programmes and actions.

2.6.2 Ecological sustainability

158. The emphasis of the project is biodiversity conservation. The project will introduce no policies or practices that could have a negative impact on the environment.

2.6.3 Social sustainability

159. The project will build on the work of UNDP Communities Programme. This Programme has more than 10 years' experience of rural development in Tajikistan. It has the capacity to ensure that project interventions complement and build on existing social capacity, rather than undermining it. The proposed project will benefit from the experience of the Communities Programme.

160. In addition, the project will work in close partnership with the GEF Small Grants Programme. The SGP has over a decade of experience and learning related to securing global environment benefits in the GEF focal areas through community-based approaches that also generate local benefits. Since its inception in 1992, the SGP has occupied a strategic niche within the GEF by supporting community-based initiatives that respond to GEF criteria and objectives. The SGP has promoted outreach and awareness regarding global environmental concerns; built capacities of communities and NGOs to address these concerns; and provided a mechanism for demonstrating and disseminating community-level and community-led solutions to global environmental problems. The proposed project will thus benefit from collaboration with the SGP, which is active in over 100 countries.

2.6.4 Financial sustainability

161. The project will not be creating any new institutions with large budgetary requirements, such as departments, protected areas and training centers. The project will seek to identify synergies and create linkages with existing institutions and programmes, which will require limited budgets to operate. Specifically, the project will work closely with existing micro-finance institutions, supported by the UNDP Communities Programme, to deliver services required for implementation of Outcomes 2 and 3 detailed above. This will include the provision of micro-loans to support community-based in situ conservation of agro-biodiversity demonstrations, and initiate and develop related agro-enterprises.

162. Existing MFIs, based in the proposed project territories, to be used by the project include:

- "Imdodi Hutal" in Kulyab;
- "Rushdi Odii Zarafshon" in Zarafshan;
- "Faizi Surhob" in Rasht.

163. These institutions are self-sustainable and have been in operation for about two years. UNDP's micro-finance schemes have existed since 2000. The reason for recent changes and establishment of the new MFIs was to address the changes in the legislation connected with the new "Law on Micro-finance Activities" approved in 2004. The portfolio of the MFIs established with assistance from UNDP now totals more than US$4 million. All MFIs are sustainable and demonstrate good profit as a result of strict management and auditing:

- 2007, over US$400,000.

- 2008 (January to September), over US$250,000.

164. Please see the annexes for full details of the Terms of Reference for MFIs (including details of the role and scope of MFIs, operating procedures, output and performance measures, reporting and performance criteria, and auditing procedures.

165. The project aims to contribute to market transformation and the development of biodiversity friendly products and markets. This can only be successful if the products are competitive, and can be traded and sold either locally or nationally or both. The project recognises that farmers will not produce biodiversity friendly products, or aim to participate in biodiversity-friendly markets, if no income can be generated. The recruitment of an international expert on agro-enterprise development will provide the project with the opportunity to investigate the sector in depth before any national or local engagement.

2.7 Replicability

166. The project has important potential for replication based on three factors:

- Tajikistan's role as a storehouse of globally significant agro-biodiversity;
- The implications of climate change on agro-biodiversity; and
- The possibilities for income generation based on agro-biodiversity conservation and sustainable use.

167. The three main demonstrations of the project are *in situ* and *ex situ* conservation of globally significant agro-biodiversity, and the development of agro-enterprises based on locally existing agro-biodiversity. These approaches will provide important lessons that can be extended, first and foremost, to areas where globally significant agro-biodiversity is located, both within and outside Tajikistan.

168. More broadly, lessons can be applied by the Government to implement policies and regulations in support of land reform and land-use that promote and facilitate the conservation of the globally-significant agro-biodiversity in the face of climate change; enable communities to adapt and cope with climate change; and develop markets that help farmers to generate additional sources of income based on the sustainable use and conservation of agro-biodiversity. In Tajikistan, lessons learned by the project will be replicated within further land and economic reforms; and project activities have been designed to enable this. This will include training workshops, integrated participatory planning processes, multi-agency seminars and working groups, and community-to-community exchanges.

169. In regard to the donor community, it should be noted that this project will ensure that outputs from the project are taken and made use of not only within Tajikistan but the Central Asia region as a whole. Thus the project monitoring and evaluation process will directly feed into other GEF national projects, and provide a basis for accurate evaluation of progress towards the overall objectives of (multi-)country initiatives in the region. Experiences and lessons learned during the project implementation will be widely disseminated.

PART 3: Management Arrangements

170. UNDP is the Implementing Agency for this project.

171. At the national level, the project will be executed by the National Biodiversity and Biosafety Centre (NBBC). The NBBC (in coordination with the Committee for Environmental Protection) will appoint a senior official to be the Project Coordinator (PC). The PC will ensure full government support of the project. The NBBC will be responsible for preparing regular work plans, for preparing the Terms of Reference of all consultants and sub-contractors, and for overseeing the work of the consultants and sub-contractors. Overall guidance will be provided by the Project Board (PB). This will consist of key national governmental and non-governmental agencies, and appropriate local level representatives. UNDP (including representatives of the Communities Programme) will also be represented on the PB. The PB will be balanced in terms of gender.

172. The NBBC will establish a Project Implementation Unit (PIU) comprising permanent staff including: a National Project Manager (NPM), a Deputy Project Manager, National Project Experts (NPE), a finance assistant and a project assistant. The PIU will assist NBBC to perform its role as implementing partner. The NPM will be recruited in accordance with UNDP's regulations to manage actual implementation of the project; and will be based in Dushanbe. S/he will report to the UNDP Focal Point on Energy and Environment. The NPM will be responsible for overall project coordination and implementation, consolidation of work plans and project papers, preparation of quarterly progress reports, reporting to the project supervisory bodies, and supervising the work of the project experts and other project staff. The NPM will also closely coordinate project activities with relevant Government institutions and hold regular consultations with other project stakeholders. The NPM will also closely coordinate project activities with relevant government institutions and hold regular consultations with other project stakeholders and partners, including UNDP's Communities Programme and the GEF Small Grants Programme. To support the NPM, a "lead international expert" will be recruited to provide overall guidance, expert advisory services, and technical assistance to the NPM and the other project experts. At the outset of the project, the lead consultant's input will be on a semi-permanent basis, and it will be gradually reduced in the subsequent stages as internal project capacity grows. In addition to the lead consultant, international experts on agro-biodiversity conservation, climate change adaptation and market promotion will be utilized on a short-term basis. The Deputy Project Manager will support the PM as required on technical and operational issues related to project implementation. Finally, an Administrative Assistant (AA) will be recruited. Under the direct supervision of the PM, the Admin Assistant will be responsible for administrative and financial issues, and will get support from the existing UNDP administration.

173. The permanent core technical staff of the project will be three National Project Experts (NPE), one focusing on agro-biodiversity and climate change adaptation issues, one on agro-enterprise development, and one on policy and legislation. The NPEs will supervise a team of national specialists[22], who will implement specific activities of the project at the local level. The NPM, NPEs and national specialists will spend a large portion of their time in the field, and the NPM will be ultimately responsible for liaison with communities engaged in the project. With the emphasis on "working conservation" – where threatened germplasm is "put to work" and serves to enhance livelihoods – the partnership with communities is a pivotal component of the project.

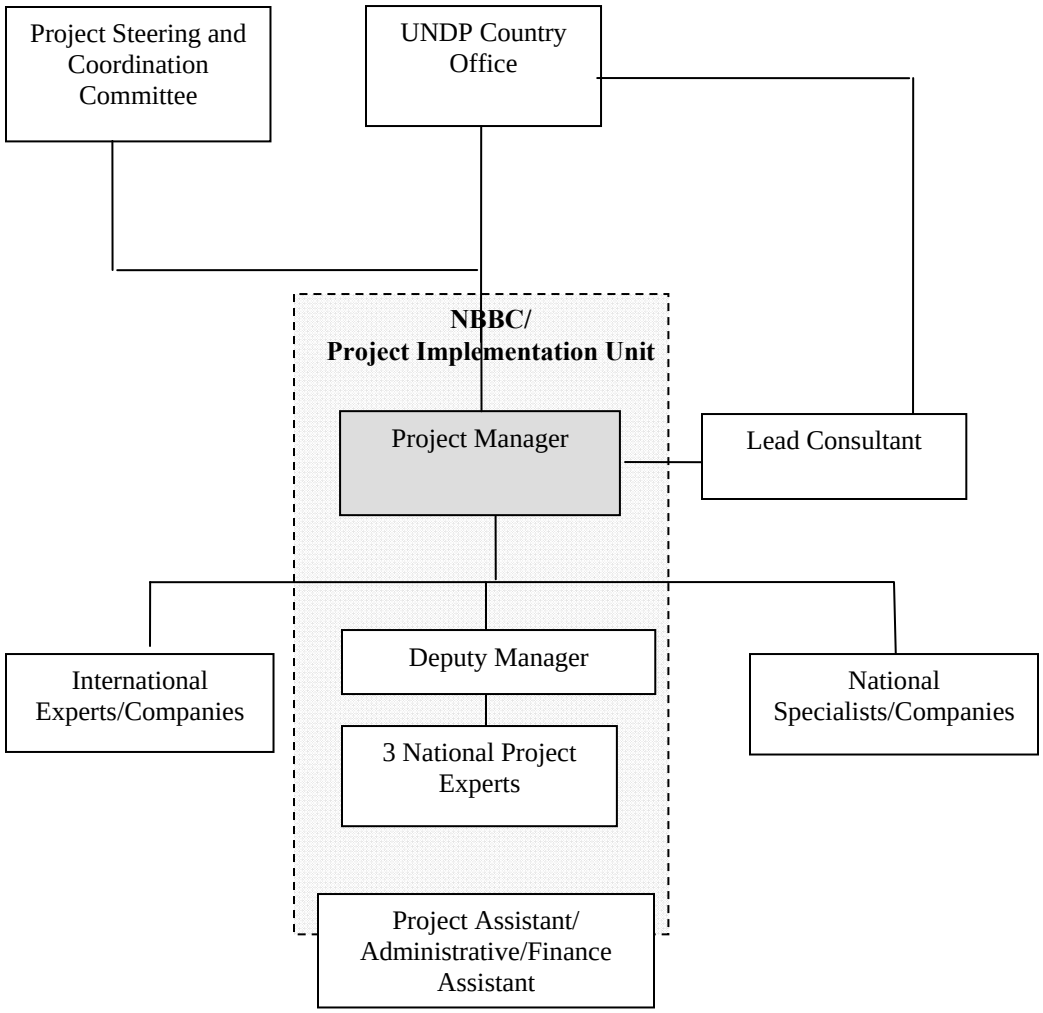
174. The UNDP's Communities Programme and the GEF Small Grants Programme will be closely involved in the implementation of selected parts of the project, particularly those connected to the work at the community level. The necessary agreements will be signed separately by NBBC and the Communities Programme on the scope of work to be done within the project. Partnership with the GEF Small Grants Programme will be recognized by the SGP country programme strategy. During the Inception phase of the programme, the role of SGP will be clarified on initiation of the project. To ensure close collaboration with the GEF Small Grants Programme, it is proposed that the GEF SGP National Coordinator sit on the project advisory board of the present project; and in turn, that the SGP National Steering Committee

[22] It is envisaged that the national specialists will be recruited through the UNDP Communities Programme (CP). With area offices and staff working at the local level in the proposed project territories, implementation of the project at the local level should depend on and enhance the activities of existing community structures and services. Given that it is likely that the national specialists will undertake project-related tasks in addition to their existing job description, their terms of reference and reporting structure should ensure that they can spend at least 40% of their time in the field working on *in* and *ex situ* conservation directly related to project activities; and that they receive any necessary training on core project concerns, such as agro-biodiversity conservation; issues relating to adaptation to climate change; and agro-enterprise development. Close collaboration with be sought with local JRCs, who will provide micro-finance and extension services in support of the project. In this regard, the project will extensively use the infrastructure and capacities of the Communities Programme, particularly during the implementation of the components related to the communities, and clarification of the specific roles of NBBC and the Communities Programme will be achieved during the Inception phase of the project.

include a member of the project advisory board as well as recognized national specialists in the fields of agro-biodiversity conservation, adaptation to climate change, and agro-enterprise and SME development. The partnership will complement the broader rural development focus of the UNDP Communities Programme, and ensure a continued focus on the delivery of global environmental benefits.

175. The PIU, following UNDP procedures on implementation of NEX projects, will identity national experts and consultants, and international experts as appropriate to undertake technical work. The national and international companies may also be involved in project implementation. These consultants and companies will be hired under standard prevailing UNDP procedures on implementation of NEX projects. The UNDP Country Office will provide specific support services for project realization through the Administrative and Finance Units as required.

176. The following chart shows the overall project management structure:



177. Full details of project staff and consultants to be recruited by the project can be found in Annex C of the CEO Endorsement Document.

178. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo will appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF will also

accord proper acknowledgment to GEF. The UNDP logo should be more prominent, and separated from the GEF logo if possible, as UN visibility is important for security purposes.

PART 4: Monitoring and Evaluation Plan and Budget

179. The project team and the UNDP Country Office (UNDP-CO) supported by the UNDP/GEF Regional Coordination Unit in Bratislava will be responsible for project monitoring and evaluation conducted in accordance with established UNDP and GEF procedures. The Logical Framework Matrix in Annex 1 provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. The Financial Scorecard and Capacity Assessment Scorecard will all be used as instruments to monitor progress in PA management effectiveness. The M&E plan includes: inception report, project implementation reviews, quarterly and annual review reports, a mid-term and final evaluation. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

4.1 Monitoring and reporting[23]

Project Inception Phase

180. A Project Inception Workshop will be conducted with the full project team, government counterparts, co-financing partners, the UNDP-CO, and representatives from the UNDP-GEF Regional Coordinating Unit and UNDP-GEF (HQ). A fundamental objective of the Inception Workshop will be to help the project team to understand and take ownership of the project's goal and objective, and to prepare the project's first annual work plan based on the logframe matrix. Work will include reviewing the logframe (indicators, means of verification, assumptions and expected outcomes), providing additional detail as needed, and then finalizing the Annual Work Plan (AWP) with measurable performance indicators. The Inception Workshop (IW) will also: (i) introduce project staff to the UNDP-GEF team (the CO and responsible Regional Coordinating Unit staff) that will support project implementation; (ii) detail the responsibilities of UNDP-CO and RCU staff vis-à-vis the project team; (iii) detail the UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs), the Annual Review Report (ARR), and mid-term and final evaluations. The IW will also inform the project team regarding UNDP project related budgetary planning, budget reviews, and mandatory budget re-phasing. An overall objective of the IW is that all parties understand their roles, functions, and responsibilities within the project's decision-making structures; and that reporting and communication lines and conflict resolution mechanisms are clear to all. Terms of Reference for project staff and decision-making structures will be again discussed to clarify each party's responsibilities during project implementation.

Monitoring responsibilities and events

181. The project management, in consultation with project implementation partners and stakeholder representatives will develop a detailed schedule of project review meetings to be included in the Project Inception Report. The schedule will include: (i) tentative time frames for Project Board Meetings and (ii) project related Monitoring and Evaluation activities. The Project Manager will be responsible for day-to-day project monitoring based on the project's Annual Work Plan and its indicators. The Project Manager will inform the UNDP-CO of delays or difficulties so that appropriate support or corrective measures can be adopted in a timely fashion. At the Inception Workshop, the Project Manager, the project team, UNDP-CO and the UNDP-GEF Regional Coordinating Unit will work together to fine-tune project progress and performance/impact indicators, specific targets for the first year of implementation, and

[23] New or additional GEF monitoring requirements will be accommodated once officially launched.

means of verification. Targets and indicators for subsequent years will be defined annually by the project team as part of the internal evaluation and planning processes. The project will use the relevant Tracking Tool for additional monitoring of progress. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the Implementing Partner, or more frequently as deemed necessary, allowing partners to troubleshoot project problems in a timely fashion.

Project Inception Phase

182. The project team, relevant government counterparts, co-financing partners, the UNDP-CO, representatives from the UNDP-GEF Regional Coordinating Unit, and the UNDP-GEF (HQs) will conduct a Project Inception Workshop (IW). Fundamental objectives of the IW will be to help the project team understand and take ownership of project goals and objectives, finalize the first annual work plan based on the logframe matrix, review the logframe (indicators, means of verification, assumptions, performance indicators, and expected outcomes), and finalize the Annual Work Plan (AWP). The IW will also: (i) introduce project staff to the UNDP-GEF team (the CO and responsible Regional Coordinating Unit staff) that will support project implementation; (ii) detail the responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs), the Annual Review Report (ARR), and mid-term and final evaluations. The IW will also inform the project team regarding UNDP project related budgetary planning, budget reviews, mandatory budget re-phasing, and project decision-making structures, reporting and communication lines, and conflict resolution mechanisms. Partners will be able to gain an understanding of their project roles, functions, and responsibilities. Terms of Reference for project staff and decision-making structures will be discussed to clarify each party's responsibilities in project implementation.

Monitoring responsibilities and events

183. Project management, project partners and stakeholder representatives will collaborate on the development of a detailed schedule of project review meetings to be incorporated in the Project Inception Report. The schedule will include: (i) tentative time frames for Project Board Meetings and (ii) project related Monitoring and Evaluation activities. The Project Manager will be responsible for day-to-day monitoring of implementation progress based on the Annual Work Plan and indicators. The Project Manager will inform the UNDP-CO of any delays or difficulties so that appropriate and timely corrective measures can be implemented. At the IW, the Project Manager, project team, UNDP-CO, and UNDP-GEF Regional Coordinating Unit will fine-tune the project's progress and performance/impact indicators and will develop specific targets and their means of verification for the first year's progress indicators. Every year the project team will define targets and indicators as part of the internal evaluation and planning processes.

184. The Project Board Meetings (PBM) will be responsible for twice a year project monitoring. The PBM will be the highest policy-level meeting of the partners involved in project implementation. The first such meeting will be held within the first six months of the start of full implementation.

185. The Project Manager in consultation with UNDP-CO and UNDP-GEF RCU will prepare a UNDP/GEF PIR/APR for submission to PBM members and the Project Board for review and comments and for discussion at the PB meeting. The Project Manager will highlight policy issues and recommendations and will inform participants of agreements reached by stakeholders during the PIR/ARR preparation on how to resolve operational issues. Separate reviews of each project component will be conducted as necessary. Benchmarks will be developed at the Inception Workshop, based on delivery rates and on qualitative assessments of achievements of outputs. A terminal PBM will be held in the last month of project operations. The Project Manager will prepare a Terminal Report for submission to UNDP-CO and UNDP-GEF RCU at least two months in advance of the terminal PBM to allow for review and to serve as the basis for discussions in the PBM. The terminal meeting will consider project implementation, achievement of project objectives, contribution to broader environmental objectives,

actions needed to sustain project results, and ways that lessons learnt can feed into other projects being developed or implemented.

186. UNDP Country Office, UNDP-GEF RCU, and any other members of the Project Board will annually assess (with detailed scheduling agreed upon at the project Inception Report/Annual Work Plan) progress at the project sites. No less than one month after the visit, the CO and UNDP-GEF RCU will prepare a Field Visit Report/BTOR to be circulated to the project team, all Project Board members, and UNDP-GEF.

Project Reporting

187. The Project Manager in conjunction with the UNDP-GEF extended team will prepare and submit reports that form part of the monitoring process. The first six reports are mandatory and strictly related to monitoring; while the last two have broader functions such that their frequency and nature are project specific to be defined throughout implementation.

188. A Project Inception Report will be prepared immediately after the Inception Workshop. It will include a detailed First Year / Annual Work Plan divided in quarterly timeframes detailing activities and progress indicators guiding first year project implementation. This Work Plan will include dates of specific field visits, support missions from the UNDP-CO, the Regional Coordinating Unit (RCU), or consultants, and scheduling of the project's decision-making structures. The Report will also include a detailed project budget for the first full year of implementation based on the Annual Work Plan and the monitoring and evaluation requirements for the first year. The Inception Report will also detail the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project partners. The IR will also discuss progress to date on project establishment, start-up activities, and an update of changed external conditions that may effect project implementation. The finalized report will be circulated to project counterparts who will be given one calendar month in which to respond with comments or queries. The UNDP Country Office and UNDP-GEF Regional Coordinating Unit will review the document prior to circulation of the IR.

189. An Annual Review Report will be prepared by the Project Manager and shared with the Project Board prior to each annual Project Board meeting and will consist of the following sections: (i) project risks and issues; (ii) project progress against pre-defined indicators and targets and (iii) outcome performance. As a self-assessment by project management, the report does not entail a cumbersome preparatory process. At a minimum the ARR will follow the Atlas standard format for the Project Progress Report (PPR, although the country office may modify the format, as necessary) and will include a summary of results achieved relative to pre-defined annual targets, progress in meeting the Annual Work Plan, and achievement of intended outcomes via project partnerships. The ARR can also be used to spur dialogue among Project Board and partners. .

190. The Project Implementation Review (PIR) is an annual management and monitoring tool mandated by the GEF that has become the main vehicle for extracting lessons learned from ongoing projects. The CO and project team must provide the PIR generated using a participatory approach after one year of project implementation, with submission in July followed by discussion with the CO and the UNDP/GEF Regional Coordination Unit in August and final submission to the UNDP/GEF Headquarters in the first week of September.

191. Quarterly progress reports: The project team will provide short reports each quarter outlining main updates in project progress. Reports will be submitted to the local UNDP Country Office and the UNDP-GEF RCU.

192. UNDP ATLAS Monitoring Reports: A quarterly Combined Delivery Report (CDR) summarizing all project expenditures is mandatory and will be certified by the Implementing Partner. The following logs are to be maintained and updated throughout the project by the Project Manager: (i) The Issues Log captures and tracks the status of all project issues throughout project implementation; (ii) the Risk Log

(using Atlas) captures potential risks to the project and associated measures to manage risks; and (iii) the Lessons Learned Log captures insights and lessons based on good and bad experiences.

193. Project Terminal Report: The project team will prepare the Project Terminal Report in the last three months of the project. This comprehensive report will summarize all activities, achievements, and outputs of the Project, lessons learnt, objectives met or not achieved, and structures and systems implemented. The PTR will be the definitive statement of the Project's activities over its lifetime, recommending any further steps needed to ensure sustainability and replicability of the Project's activities.

194. Periodic Thematic Reports: The project team will prepare Specific Thematic Reports when called for by UNDP, UNDP-GEF, or the Implementing Partner. The written request by UNDP for a Thematic Report provided to the project team will clearly state the issue or activities that need to be reported on. These reports can deal with lessons learnt, specific oversight in key areas, or troubleshooting to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

195. Technical Reports are detailed documents covering specific areas of analysis or scientific issues in the project. As part of the Inception Report, the project team will prepare a draft Reports List that details which technical reports need to be prepared over the course of the Project and their tentative due dates. This Reports List will be revised and updated as necessary, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined research areas within the project framework. These technical reports will represent the project's substantive subject-matter contributions to be included in dissemination of results at local, national and international levels; and as such will be produced in a consistent and recognizable format.

196. Project Publications will crystallize and disseminate project results and achievements; can include scientific journal articles, informational texts, or multimedia publications; and can be based on selected Technical Reports or syntheses of a series of Technical Reports. The project team in consultation with UNDP, government partners and other stakeholders will determine if any of the Technical Reports merit formal publication and appropriate financial support.

Independent evaluations

197. The project will require at least two independent external evaluations. An independent Mid-Term Evaluation will assess outcome achievements; will identify needed course corrections; will examine the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; will present initial lessons learned about project design, implementation and management; and will provide recommendations to improve implementation of the second and final half of the project. The UNDP CO in collaboration with the UNDP-GEF Regional Coordinating Unit will develop the organization, terms of reference, and timing of the mid-term evaluation

198. An independent Final Evaluation will take place three months prior to the terminal Project Board meeting and will focus on the same issues as the mid-term evaluation as well as on the impact and sustainability of results, capacity building, achievement of global environmental goals, and recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the UNDP-GEF Regional Coordinating Unit.

Audit Clause

199. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals.

The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

Learning and knowledge sharing

200. Project results will be disseminated within and beyond the project intervention zone via information sharing networks and forums including the UNDP/GEF networks that involve Senior Personnel of similar and related projects. UNDP/GEF Regional Unit has established an electronic platform for sharing lessons learned among project coordinators. The project will participate in relevant scientific, policy-based and other networks that can benefit project implementation via lessons learned; and will share its own lessons learned with other similar projects. Identification and analyses of lessons learned will be provided and communicated annually. UNDP/GEF will provide a format and assist the project team in categorizing, documenting and reporting on lessons learned.

Table 6. Project Monitoring and Evaluation Plan and Budget

Type of M&E activity	**Responsible Parties**	**Budget US$** *Excluding project team Staff time*	**Time frame**
Inception Workshop	▪ Lead Consultant ▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF	10,000	Within first four months of project start up
Inception Report	▪ Project Team ▪ UNDP CO	None	Within two months following IW
Measurement of Means of Verification for Project Purpose Indicators	▪ Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Indicative cost: 8,000, total: 24,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation. Indicative cost: 8,000 (annually); total: 40,000	Annually prior to ARR/PIR and to the definition of annual work plans
ARR and PIR	▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF	None	Annually
Quarterly progress reports	▪ Project team	None	Quarterly
CDRs	▪ Project Manager	None	Quarterly
Issues Log	▪ Project Manager ▪ UNDP CO Programme Staff	None	Quarterly
Risks Log	▪ Project Manager ▪ UNDP CO Programme Staff	None	Quarterly
Lessons Learned Log	▪ Project Manager ▪ UNDP CO Programme Staff	None	Quarterly

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team Staff time*	Time frame
Mid-term Evaluation	▪ Project team ▪ UNDP- CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)	40,000	At the mid-point of project implementation.
Final Evaluation	▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)	40,000	At the end of project implementation
Terminal Report	▪ Project team ▪ UNDP-CO ▪ local consultant	0	At least one month before the end of the project
Lessons learned	▪ Project team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)	15,000 (average 3,000 per year)	Yearly
Audit	▪ UNDP-CO ▪ Project team	15,000 (average 3,000 per year)	Yearly
Visits to field sites	▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives	Paid from IA fees and operational budget	Yearly
TOTAL INDICATIVE COST Excluding project team staff time and UNDP staff and travel expenses		**US$ 184,000**	

PART 5: Legal Context

201. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Tajikistan and the United Nations Development Programme, signed by the parties on 1 October 1993. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement. The UNDP Resident Representative in Tajikistan is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- Revision of, or addition to, any of the annexes to the Project Document;
- Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;

- Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- Inclusion of additional annexes and attachments only as set out here in this Project Document.

SECTION II: APPENDICES

Annex A: Project Logical Framework

	Objectively Verifiable Indicators (OVIs)				
Goal	**To conserve the agro-biodiversity of Tajikistan in the face of climate change**				
Project Strategy	**Objectively Verifiable Indicators**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
Objective: Globally significant agro-biodiversity (ABD) conservation and adaptation to climate change (CC) are embedded in the national and local agricultural and rural development policies and practices of Tajikistan.	Number of hectares of productive landscape where climate resilient agrobiodiversity conservation is mainstreamed	Oblast/jamoat plans are not considering climate resilient agrobiodiversity	Oblast/jamoat plans incorporate priority ABD and CC issues covering 1.5 million hectares in four districts (Shurobod, Rasht, Baljuan and Zerafshan) and 36 sub-districts (*Jamoats*)	BD2 Tracking Tool (Annex_F)	Oblast and jamoats supportive of the conservation of climate resilient agrobiodiversity.
	Farms in pilot areas have the capacity to implement in situ and ex-situ conservation of climate resilient ABD as means to cope with impacts of CC through implementation of Homologue Approach;	Limited local capacity for in-situ and ex-situ conservation of climate resilient agrobiodiversity. Few ex-situ collections of germplasm as identified through GBIF database	*Ex situ* and *in situ* conservation that provides adapted germplasm for crop improvement and climate resilience programmes in Tajikistan and globally Tajik germplasm used and valued by farms/ communities as means to adapt to climate change	Accessions of viable germplasm and germplasm exchange systems, typified by the GBIF database; Use of germplasm in crop improvement programmes as typified by the reports of the relevant national and international plant breeding institutes	Support for community based *in situ* conservation and management; National support of *ex situ* facilities; Germplasm is collected, characterized, and viably conserved; Lack of inter-agency dialogue prevents development of adaptive and institutional capacity and strategies to manage CC.

	Objectively Verifiable Indicators (OVIs)				
Goal	**To conserve the agro-biodiversity of Tajikistan in the face of climate change**				
Project Strategy	**Objectively Verifiable Indicators**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
Outcome 1: Agro-biodiversity conservation and adaptation to climate change through supportive policy, regulatory and institutional frameworks	Regulatory framework at the national and local level promotes: (i) conservation of agrobiodiversity within current production systems and the adaptive capacity to cope with climate change; (ii) implementation of in-situ and ex-situ conservation measures	Enabling environment at national and local level is not conducive for agrobiodiversity conservation and its potential role for climate adaptation and future food security	Agro-biodiversity friendly and climate resilient policies and practices embedded into national policy and local development plans contributing to improved agrobiodiversity conservation in the face of climate change on over 1.5 million productive landscape;	Official gazette Policies and regulations	Food security, poverty reduction and development related strategies take priority over biodiversity conservation; Assumption that crop and climate modeling is accurate: A risk is a lack of confidence in modeling results by national institutions; The same strategies work to reduce ABD through development-oriented land use change;

	Objectively Verifiable Indicators (OVIs)				
Goal	**To conserve the agro-biodiversity of Tajikistan in the face of climate change**				
Project Strategy	**Objectively Verifiable Indicators**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
	Institutional framework in place at the national and local level facilitates implementation of ABD relevant policies, legislation and regulation in 4 pilot areas;	Lack of climate and crop models prohibit strategic planning and adaptive capacity development in face of climate change and threats to food security.	National CC agencies generate climate and crop models that provide accurate and timely information to local stakeholders; National extension services develop farmer training scheme on ABD conservation and management of climate resilient crop wild relatives; Extension package in place in 4 pilot sites covering approx. 150,000 ha (each using one important crop as entry point to ABD friendly, climate resilient production practices for the following crops: apricot, almond pistachio, fig).	By-laws of extension services Project reports	

	Objectively Verifiable Indicators (OVIs)				
Goal	**To conserve the agro-biodiversity of Tajikistan in the face of climate change**				
Project Strategy	**Objectively Verifiable Indicators**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
Outcome 2: Improved capacity for sustaining agro-biodiversity in the face of climate change	Improved capacity for ex-situ conservation measures of globally significant and climate resilient agrobiodiversity	Local communities are not aware of implications of climate change and are not working towards the development of adaptive strategies and capacities;	Ex situ (gene bank) conservation of globally significant ABD established in collaboration with local institutions to protect wild relatives of important crops (including walnut, pistachio, pomegranate, fig, mulberry, apricot, almond, others)	Numbers of viable accessions conserved both *in situ* and *ex situ;* Reports confirm existence of programmes;	*Ex situ* facilities are incapable of conserving viable germplasm;
	Improved capacity of farmers in four project areas to design and implement in-situ agrobiodiversity conservation measures as an adaptive capacity to climate risks and variability.	Lack of socio-ecological resilience to climate variability and shocks; Negligible national and local capacity to cope with climate risks and variability	In situ conservation of wild relatives of globally significant ABD in 40 home gardens/farms in 4 project areas covering 1.5 million hectares.	Numbers of viable accessions conserved both *in situ* and *ex situ;* Project reviews Remote sensing tools; GIS.	Local interest in alternative poverty reducing strategies work against *in situ* conservation;
	Farming communities have skills, knowledge and tools to implement homologue approach implemented in 4 project so as to enable the adaptation of their current production practices to current and future climate risks and variability;	No existing community-to-community seed and germplasm exchange programmes based on climate change impacts;	Improved capacity of farmers (men/women) in >40 home gardens/farms in 4 pilot sites to participate in implementation of the Homologue Approach and to initialize own germplasm exchanges to cope with future impacts of CC;	Reports, quantification of seed and germplasm exchange.	Farmers/communities willing to engage and participate in Homologue Approach Community interest and participation in the exchange schemes.
Outcome 3: Market conditions favour sustainable	ABD friendly agro-enterprises generate income of approximately US$ 500,000 by 2014.	Agro-enterprises are small-scale, localized and seasonal, with negligible access to international or	Sustainable national – international value chains for diverse organic agricultural products based on ABD are	Local incomes, cost benefit analyses, independent sustainability of	Existing national and local regulatory systems impose constraints that cannot be overcome; such systems cannot be restructured to support agro-

	Objectively Verifiable Indicators (OVIs)				
Goal	**To conserve the agro-biodiversity of Tajikistan in the face of climate change**				
Project Strategy	**Objectively Verifiable Indicators**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
agro-biodiversity production		national markets and business opportunities	developed and improve local livelihoods	agro-enterprises as obtained by project surveys Evidence of local income generation; Existence of agro-enterprises based on ABD	enterprise development; Inability to bring products to market in a consistent and timely manner; Infrastructure limitations; Lack of demand for specialty high value goods in developed countries due to global recession.
	Value chains of ABD-friendly products in domestic and overseas markets.	Non-existent and/or unorganized marketing of local ABD goods to national and international markets	Up to four (fruit and nuts) agrobiodiversity certified and/or non-certified products marketed and sold in new national and/or international markets;	Reports on volume and timeliness of production; Cost benefit analysis;	
Outcomes/Outputs:					
1.1.Agrobiodiversity conservation and adaptation principles mainstreamed into local and national policies and programmes; 1.2. Extension package for promoting climate resilient farming varieties developed and integrated into the national extension service and delivery system; 1.3. Capacity of local government to enforce policies, sectoral guidelines and spatial plans in support of agro-biodiversity conservation and adaptation to climate change increased in 4 pilot areas; 1.4. CSOs and local government in pilot areas have skills to actively support communities to integrate agrobiodiversity conservation into farming systems, build adaptive capacity, and link such production to markets; 1.5. Capacity building programs implemented to ensure institutions charged with responsibility for managing the ex-and in-situ gene banks are effective; 1.6. ABD policies applied in 4 pilot areas & adopted in >40 home gardens/farms; 1.7. Local level producer societies for specific crops (such as fig, pistachio, walnut, pomegranate, apricot, almond, mulberry) promoted to provide incentives for adoption (linking farmers to markets, and credit); 1.8. Development of long-term strategy for conservation of ABD and adaptation to climate change.					

	Objectively Verifiable Indicators (OVIs)				
Goal	**To conserve the agro-biodiversity of Tajikistan in the face of climate change**				
Project Strategy	**Objectively Verifiable Indicators**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
2.1. Farmers in the 4 pilot areas provided with skills and knowledge to increase farm productivity (and food security) using climate resilient agro-biodiversity friendly practices; 2.2. Community-based participatory methods (building on traditional knowledge) developed and implemented for ex situ conservation especially of recalcitrant materials (seed that cannot be stored ex situ); 2.3. Tajik ABD germplasm available to national, regional and global crop improvement programmes; 2.4. In situ "gene banks" established in 40 home gardens/farms in 4 pilot sites, including collection, geo-referencing, identification, characterization, and/or germplasm-banking of prioritized ABD (largely fruit and nuts); 2.5. Climate change and crop modeling facilitates the selection of the most appropriate homologue sites that represent present and future conditions; 2.6. Sustainable management strategies for the 4 project areas and areas certified as sources of climate resilient wild crop relatives; 2.7. A network of databases established on materials maintained in situ and ex situ; 2.8. Awareness campaigns in partnership with the GEF SGP address conservation of agro-biodiversity and adaptation to climate change.					
3.1. Capacity building programme to ensure that institutions charged with responsibility for supporting the development of agro-biodiversity based agro-enterprises are effective; 3.2. Identification, differentiation and marketing programs for certified products from 4 pilot areas and non-certified ABD climate resilient products grown, developed and implemented through a supply chain approach; 3.3. International marketing campaign (trade fairs, online) to establish Tajikistan as an international source of ABD-friendly climate resilient products for consumers concerned about the point of origin, sustainability and heritage of food in face of CC; 3.4. Crop certification established for products increasing farmer's ability to sell products and services at a premium; 3.5. Seed grants (through partnership with GEF Small Grants Programme) support development of agro-biodiversity based agro-enterprises at each site; 3.6. Increased funding available for start-up initiatives and SMEs, provided by existing MFIs (supported by JRCs/UNDP Communities Programme) to ABD agro-enterprises; 3.7. Enhanced business advisory centers and Jamoat Resource Centers support efforts to bring climate resilient ABD-friendly products to markets.					

Annex B: Incremental Cost Analysis

Project Outcome	Cost Category	Cost in US$	Domestic Benefits	Global Benefits
1. Agro-biodiversity (ABD) conservation and adaptation to climate change (CC) through supportive policy, regulatory and institutional frameworks.	Baseline	*1,500,000 *2007-2011 World Bank/GEF Central Asia Transboundary project "Biodiversity Conservation of West Tien-Shan to conserve unique and threatened ecosystems of the West Tien Shan in Kazakhstan, Kyrgyz Republic, and Uzbekhistan"	Limited capacity to implement existing policies and regulations relating to the protection of threatened, near-threatened, and vulnerable agro-biodiversity; lack of adaptation strategy in face of climate change; lack of strategy to stimulate development of agro-enterprise	
	With GEF Alternative	GEF: 303,000 Co-financing: 255,000 Total: 558,000	Inclusion of agro-biodiversity conservation priorities and related climate change imperatives into sustainable, integrated policy and legislative frameworks; long-term framework and strategy for agro-enterprise and market development based on agro-biodiversity as global genetic heritage.	Provision of genetic materials from Tajikistan that that are pre-adapted to a range of biotic and abiotic stresses to global breeding programs to adapt to climate change via crop improvement.
	Increment	2,058,000		

Project Outcome	Cost Category	Cost in US$	Domestic Benefits	Global Benefits
2. Improved capacity for sustaining agro-biodiversity in the face of climate change.	Baseline	*20,000,000 **1,100,000 ***1,200,000 *UNDP Communities Programme **2006-2011 "Demonstrating new approaches to Protected Areas and Biodiversity Management in the Gissar Mountains as a model for strengthening the national Tajikistan Protected Areas System" ***2007-2011 "Demonstrating Local Responses to Combating Land Degradation and Improving Sustainable Land Management in South-west Tajikistan"	Lack of system, institutional and individual capacity to conserve and sustainably use ABD, adapt to climate change, and develop agro-enterprises based on existing agro-biodiversity.	
	With GEF Alternative	GEF: 727,000 Co-financing: 492,000 Total: 1,219,000	Demonstrations of *ex situ* and *in situ* conservation that provides adapted germplasm for crop improvement programmes in Tajikistan. Demonstration of possible climate change impacts on agro-ecosystems and development of coping strategies. National and local organizational/governance structures and staffing in JRCs and local authorities able to respond to ABD and CC imperatives. Enhanced conservation-and CC-related knowledge and capacities.	Adapted Tajik germplasm used in global crop improvement programmes as part of adaptation to climate change.
	Increment	23,519,000		
3. Market conditions favour sustainable agro-biodiversity production	Baseline	0	Agro-enterprises are local and seasonal with little value added.	
	With GEF Alternative	GEF: 680,000 Co-financing: 1,076,500 Total: 1,756,500	Demonstration of sustainable national – international value chains for value added agro-enterprises developed and improve local livelihoods	International recognition of environmental and economic values of agro-biodiversity from Tajikistan as global genetic heritage.

Project Outcome	Cost Category	Cost in US$	Domestic Benefits	Global Benefits
	Increment	1,756,500		
Project management	Baseline	0		
	With GEF Alternative	GEF: 190,000 Co-financing: 276,500 Total: 466,500	Not applicable	
	Increment	466,500		Information sharing within Tajikistan and Central Asia
TOTAL	**Baseline**	**23,800,000**		
	With GEF Alternative	**27,800,000**		
	Increment	**4,000,000** **(GEF) 1,900,000**		

SECTION III: BUDGET

Award ID:	00057096
Award Title:	PIMS 3647 BD FSP: Sustaining Agricultural Biodiversity in the face of Climate Change in Tajikistan
Business Unit:	TJK10
Atlas Project ID	00070411
Project Title:	PIMS 3647 BD FSP: Sustaining Agricultural Biodiversity in the face of Climate Change in Tajikistan
Implementing Partner (Executing Agency)	National Biodiversity and Biosafety Center (NBBC)

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Agro-biodiversity conservation and climate resilience are embedded into the national policy and local development plans.	**NBBC**	**62000**	**GEF**	71200	International Consultants	$40,000	$40,000	$30,000	$25,000	$25,000	**$160,000**	1
				71300	Local Consultants	$14,000	$14,000	$13,000	$12,000	$10,000	**$63,000**	2
				72100	Contractual services	$8,000	$14,000	$12,000	$12,000	$12,000	**$58,000**	3
				71600	Travel	$3,000	$5,000	$4,000	$3,000	$2,000	**$17,000**	4
				74500	Miscellaneous	$1,000	$1,000	$1,000	$1,000	$1,000	**$5,000**	5
					Sub-total GEF	**$66,000**	**$74,000**	**$60,000**	**$53,000**	**$50,000**	**$303,000**	
				71300	Contractual services	$3,000	$3,000	$3,000	$3,000	$3,000	**$15,000**	6
				72500	Office Supplies	$1,500	$1,500	$1,500	$1,500	$1,500	**$7,500**	7
				74500	Miscellaneous	$1,000	$2,000	$2,000	$2,000	$2,000	**$9,000**	8
					Sub-total UNDP	**$5,500**	**$6,500**	**$6,500**	**$6,500**	**$6,500**	**$31,500**	
					Total Outcome 1	**$71,500**	**$80,500**	**$66,500**	**$59,500**	**$56,500**	**$334,500**	
OUTCOME 2: Farmers have the knowledge and skills to address climate change risks and protect agro-biodiversity.	**NBBC**	**62000**	**GEF**	71200	International Consultants	$40,000	$40,000	$40,000	$30,000	$30,000	**$180,000**	9
				71300	Local Consultants	$15,000	$25,000	$25,000	$25,000	$25,000	**$115,000**	10
				72100	Contractual services	$10,000	$50,000	$50,000	$50,000	$30,000	**$190,000**	11
				71600	Travel	$7,000	$7,000	$6,000	$6,000	$6,000	**$32,000**	12
				72600	Grants	$30,000	$50,000	$50,000	$50,000	$30,000	**$210,000**	13
					Sub-total GEF	**$102,000**	**$172,000**	**$171,000**	**$161,000**	**$121,000**	**$727,000**	
				72100	Contractual services	$8,000	$15,000	$15,000	$14,000	$15,000	**$67,000**	14

		04000	**UNDP**	72500	Office Supplies	$1,500	$1,500	$1,500	$1,500	$1,500	**$7,500**	15
				74500	Miscellaneous	$1,000	$1,000	$1,000	$1,000	$1,000	**$5,000**	16
					Sub-total UNDP	**$10,500**	**$17,500**	**$17,500**	**$16,500**	**$17,500**	**$79,500**	
					Total Outcome 2	**$112,500**	**$189,500**	**$188,500**	**$177,500**	**$138,500**	**$806,500**	
OUTCOME 3: Enabling environment for market development for agro-biodiversity products developed.	**NBBC**	**62000**	**GEF**	71200	International Consultants	$25,000	$25,000	$15,000	$15,000	$10,000	**$90,000**	17
				71300	Local Consultants	$20,000	$20,000	$20,000	$20,000	$20,000	**$100,000**	18
				72100	Contractual services	$29,500	$50,000	$50,000	$50,000	$40,000	**$219,500**	19
				71600	Travel	$10,000	$20,000	$10,000	$10,000	$8,000	**$58,000**	20
				72600	Grants	$32,500	$50,000	$50,000	$50,000	$30,000	**$212,500**	21
					Sub-total GEF	**$99,500**	**$135,000**	**$125,000**	**$125,000**	**$85,000**	**$680,000**	
				71600	Travel	$2,000	$2,000	$3,000	$3,000	$3,000	**$13,000**	22
				72100	Contractual Services	$10,000	$20,000	$20,000	$20,000	$15,000	**$85,000**	23
		04000	**UNDP**	72500	Office Supplies	$1,500	$1,500	$1,500	$1,500	$1,500	**$7,500**	24
				74500	Miscellaneous	$1,000	$1,500	$1,500	$1,500	$1,500	**$7,000**	25
					Sub-total UNDP	**$14,500**	**$25,000**	**$26,000**	**$26,000**	**$21,000**	**$112,500**	
					Total Outcome 3	**$114,000**	**$160,000**	**$151,000**	**$151,000**	**$106,000**	**$682,000**	
				71400	Contractual services-Individuals	$26,000	$26,000	$26,000	$26,000	$26,000	**$130,000**	26
				71600	Travel	$10,000	$10,000	$10,000	$10,000	$10,000	**$50,000**	27
				74500	Miscellaneous	$2,500	$2,500	$2,500	$2,500	$2,500	**$12,500**	28
					Sub-total GEF	**$38,000**	**$38,000**	**$38,000**	**$38,000**	**$38,000**	**$190,000**	
		04000	**UNDP**	72200	Equipment	$30,000	$10,000	$10,000	$10,000	$10,000	**$70,000**	29
				71400	Contractual services-Individuals	$33,000	$33,000	$33,000	$33,000	$33,000	**$165,000**	
				72400	Communication	$4,000	$4,000	$4,000	$4,000	$4,000	**$20,000**	30
				71600	Travel	$1,000	$1,500	$1,500	$1,500	$1,000	**$6,500**	31
				72500	Office Supplies	$1,000	$1,000	$1,000	$1,000	$1,000	**$5,000**	32
				74500	Miscellaneous	$2,000	$2,000	$2,000	$2,000	$2,000	**$10,000**	33
					Sub-total UNDP	**$71,000**	**$51,500**	**$51,500**	**$51,500**	**$51,000**	**$276,500**	
					Total Management	**$109,000**	**$89,500**	**$89,500**	**$89,500**	**$89,000**	**$466,500**	

PROJECT TOTAL	**$427,000**	**$539,500**	**$519,000**	**$501,000**	**$413,500**	**$2,400,000**	

Summary of Funds:

GEF	$323,000	$449,000	$414,000	$397,000	$317,000	$1,900,000
UNDP cash	$101,500	$100,500	$101,500	$100,500	$96,000	$500,000
UNDP in kind						$ 1,030,000
NBBC						$570,000
TOTAL	**$424,500**	**$549,500**	**$515,500**	**$497,500**	**$413,000**	**$ 4,000,000**

1. This budget line partially covers the costs of the “lead international expert” to provide overall guidance, expert advisory services and technical assistance to the Project Manager and the other project experts. At the outset of the project, the lead consultant’s input will be on a semi-permanent basis, and it will be gradually reduced in the subsequent stages as internal project capacity grows. The short-term international consultancies necessary for advice on agro-biodiversity conservation, including those to support development of agro-biodiversity conservation strategy, will be covered within this budget line.
2. The national consultancies will be used for review of relevant policies, legislation and regulatory framework. The terms of reference will be prepared by the Project Manager and relevant international consultants during the implementation of the project.
3. The companies and NGOs will be contracted to increase the national capacities. The concrete services will be identified during the inception phase of the project and the detailed description of services will be developed afterwards. The companies will be selected on competitive and transparent basis based on UNDP rules and regulations. The contracts will be performance-based.
4. This budget line covers travel expenses, including travel of international consultants, and local travels for site visits, etc.
5. This budget line covers miscellaneous expenses occurring during implementation of the project.
6. The companies will be contracted to increase the national capacities. The concrete services will be identified during the inception phase of the project and the detailed description of services will be developed afterwards. The companies will be selected on competitive and transparent basis based on UNDP rules and regulations. The contracts will be performance-based.
7. This budget line covers office supplies related to the implementation of the project.
8. This budget line covers miscellaneous expenses occurring during implementation of the project.
9. This budget line partially covers the costs of the “lead international expert” to provide overall guidance, expert advisory services and technical assistance to the Project Manager and the other project experts. At the outset of the project, the lead consultant’s input will be on a semi-permanent basis, and it will be gradually reduced in the subsequent stages as internal project capacity grows. The international expertise will be also sought to build the capacity on climate change adaptation among national stakeholders.
10. The national consultancies will be used to develop techniques and tools designed to increase the capacity of farmers to conserve agro-biodiversity and to employ that biodiversity in reducing their vulnerability to the impacts of climate change. The terms of reference will be prepared by the Project Manager during the implementation of the project.
11. The companies and NGOs will be contracted to increase the national capacities. The concrete services will be identified during the inception phase of the project and the detailed description of services will be developed afterwards. The companies will be selected on competitive and transparent basis based on UNDP rules and regulations. The contracts will be performance-based.
12. This budget line will cover travel expenses, including travel of international consultants, and local travels for site visits, etc.
13. This budget line will cover grants for agro-biodiversity based agro-enterprise development at each project site.
14. The companies will be contracted to increase the national capacities. The concrete services will be identified during the inception phase of the project and the detailed description of services will be developed afterwards. The companies will be selected on competitive and transparent basis based on UNDP rules and regulations. The contracts will be performance-based.
15. This budget line covers office supplies related to the implementation of the project.
16. This budget line is to cover miscellaneous expenses occurring during implementation of the project.
17. This budget line partially covers the costs of the “lead international expert” to provide overall guidance, expert advisory services and technical assistance to the Project Manager and the other project experts. At the outset of the project, the lead consultant’s input will be on a semi-permanent basis, and it will be gradually reduced in the subsequent stages as internal project capacity grows. The short-term international consultancies necessary for advice on market promotion will be covered within this budget line.
18. The national consultancies will be used to provide an advice on business development to specific agro-enterprises established within the project framework.
19. The companies will be contracted to increase the national capacities. The concrete services will be identified during the inception phase of the project and the detailed description of services will be developed afterwards. The companies will be selected on competitive and transparent basis based on UNDP rules and regulations. The

contracts will be performance-based.
20. This budget line covers travel expenses, including travel of international consultants, and local travels for site visits, etc.
21. This budget line will cover grants for agro-biodiversity based agro-enterprise development at each site. Grants will be provided to JRCs and MFIs for the implementation of microfinance activities falling under the project.
22. This budget line will cover expenses for local travel (site visits, etc.).
23. The companies will be contracted to increase the national capacities. The concrete services will be identified during the inception phase of the project and the detailed description of services will be developed afterwards. The companies will be selected on competitive and transparent basis based on UNDP rules and regulations. The contracts will be performance-based.
24. This budget line covers office supplies related to the implementation of the project.
25. This budget line covers miscellaneous expenses occurring during implementation of the project.
26. The line will cover the salaries of the main project staff including the Project Manager, Project Assistant and Administrative and Financial assistant.
27. The line will cover the travel expenses necessary for the proper project management and monitoring throughout the project implementation.
28. This budget line is to cover miscellaneous expenses occurring during implementation of the project.
29. The budget line will cover the purchase of the equipment necessary for the effective project implementation.
30. Communication costs of the project will be covered from this budget line.
31. The line will cover the travel expenses necessary for the proper project management and monitoring throughout the project implementation.
32. The office supplies will be covered by the funds allocated under this budget line.
33. This budget line is to cover miscellaneous expenses occurring during implementation of the project

SECTION IV: ADDITIONAL INFORMATION

THE ORIGINAL PIF 202.

PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project
THE GEF TRUST FUND

Submission Date: 15 October 2007
Re-submission Date: 7 November 2007

PART I: PROJECT IDENTIFICATION

GEFSEC PROJECT ID[24]**:** 3129
GEF AGENCY PROJECT ID: 3647
COUNTRY(IES): Tajikistan
PROJECT TITLE: Sustaining agricultural biodiversity in the face of climate change
GEF AGENCY(IES): UNDP
OTHER EXECUTING PARTNER(S): National Biodiversity and Biosafety Center
GEF FOCAL AREA (S): Biodiversity, Climate Change
GEF-4 STRATEGIC PROGRAM(S): **BD-SP4**, SPA

INDICATIVE CALENDAR	
Milestones	**Expected Dates**
Work Program (for FSP)	January 2008
CEO Endorsement/Approval	March 2009
GEF Agency Approval	April 2009
Implementation Start	May 2009
Mid-term Review (if planned)	May 2011
Implementation Completion	May 2014

A. PROJECT FRAMEWORK (Expand table as necessary)

Project Objective: Globally significant agro-biodiversity and climate resilience are embedded into the agriculture policies and rural development at national and local levels in Tajikistan.

Project Components	Type	Expected Outcomes	Expected Outputs	Indicative GEF Financing		Indicative Co-financing		Total ($)
				($)	%	($)	%	
1. Agro-biodiversity conservation and adaptation to CC through supportive policy and regulatory frameworks.	TA	Agrobiodiversity conservation and climate resilience are embedded into the national policy and local development plans.	- Regulatory framework for climate sensitive decision-making in place in agriculture and forestry sectors; - Local development planning system reflecting a set of measures to promote adaptation to climate change and conservation of agrobiodiversity; - Effective coordination and participatory mechanisms across national agencies involved in agriculture, forestry, land management and agro-biodiversity conservation developed	380,000	52	350,000	48	730,000
2. Improved institutional and individual capacity for	TA	Farmers have the knowledge and skills to address climate	- Extension services are capacitated to provide information and advice to farmers on agrobiodiversity conservation and	855,000	48.7	900,000	51.3	1,755,000

[24] Project ID number will be assigned initially by GEFSEC.

sustaining agrobiodiversity in the face of climate change		change risks and protect agrobiodiversity	effective coping measures to climate risks; - Training on the values of agro-biodiversity and climate change risks for District and Jamoat officials; - Farm-based adaptation practices developed and implemented, including water harvesting regimes, soil conservation, flood protection terracing, stress-resistant local varieties, etc; - Improved agricultural and forestry techniques, such as improved cutting practices, improved grazing, wood-fuel farm planting, introduced at the community levels; - Improved farmers access to seasonal forecasts; - Agreements between farmers, farmer groups, Jamoat governments and district governments to govern the use of resources and agro-biodiversity developed in the pilot sites; - Seed Insurance Scheme piloted in selected communities to promote agrobiodiversity and improve resilience of local farmers.					
3. Market conditions favour sustainable agro-biodiversity production	TA	Enabling environment for market development for agrobioidversity products developed	- Assessment of domestic markets for biodiversity friendly products; - Markets and business skills developed. - Credit programmes of the Communities Programme are modified towards agro-biodiversity friendly practices.	495,000	17.1	2,390,000	82.9	2,885,000
4. Project management				170,000	32.1	360,000	67.9	530,000
Total project costs				1,900,000	32.2	4,000,000	67.8	5,900,000

* List the $ by project components. The percentage is the share of GEF and Co-financing respectively to the total amount for the component.

** TA = Technical Assistance; STA = Scientific & technical analysis.

B. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT ($)

	Project Preparation (including pre-RAF PDF A of 25,000)*	Project	Agency Fee	Total
GEF		1,900,000	190,000	2,090,000
Co-financing		4,000,000		4,000,000
Total		**5,900,000**	190,000	**6,090,000**

*The project received a PDF A in GEF III of 25,000 under Biodiversity Focal Area. The project will request a PPG of US$ 75,000. (US$ 25,000 from Biodiversity Focal Area and US$ 50,000 from CC/SPA). The new LoE indicates the total value including the PDF A (US$ 2,200,000), but it is understood that the amount which is requested from GEF IV is US$ 2, 175,000.

C. INDICATIVE CO-FINANCING FOR THE PROJECT (including project preparation amount**) BY SOURCE and BY NAME (**in parenthesis) if available, **($)**

Sources of Co-financing	Type of Co-financing	Amount
Project Government Contribution	In-kind	375,000
GEF Agency(ies)	In-kind	2,025,000
Others	Grant	1,600,000
Total co-financing		4,000,000

D. GEF RESOURCES REQUESTED BY FOCAL AREA(S), AGENCY (IES) SHARE AND COUNTRY(IES):

GEF Agency	Focal Area	Country Name/	(in $)			
			Project Preparation (including pre-RAF PDF A of 25,000 for BD)	Project	Agency Fee	Total
UNDP	Biodiversity	n/a	50,000	950,000	100,000	1,100,000
UNDP	Climate Change	n/a	50,000	950,000	100,000	1,100,000
Total GEF Resources			100,000*	1,900,000	200,000	2,200,000

* PPG funding will be requested at a later stage and is indicative as of now.

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

203. Tajikistan, a landlocked country located in Central Asia, is the poorest of the CIS countries with a gross national income per person of US$280 and over two thirds of the population living on less than $2.15 a day. Tajikistan is a storehouse of globally important agro-biodiversity and according to Vavilov, represents one of the basic centers of origin for cultivated plants worldwide. The main ecosystems sheltering globally significant agro-biodiversity in Tajikistan are in the mountain areas (93% of the country) and represented by: (i) xerophytic light forest ecosystems dominated by pistachio, almonds, wormwood and containing wild relatives of barley, vetch, almond, persimmon, pomegranates, grapes, etc; (ii) mesophytic forest ecosystems dominated by maple, walnut, willow and birch trees and containing wild relatives of apple, pear, cherry, plum, etc.; and (iii) agro-ecosystems, represented by small-scale farms and orchards, growing local varieties of fruit, vegetables, melons, cereals and forages. The globally significant agrobiodiversity of Tajikistan is reflected in: 1550 varieties of fruit-berries cultivated and wild growing (apple, pear, apricot, etc.), 463 varieties of vegetable-melons (e.g. onion, carrot, garlic, water-melon); 46 varieties of cereal, 39 varieties of food legumes (oats, peas, lentil, 39 varieties of forage), and about 1850 varieties of decorative plants (e.g. tulips, narcissus, iris). Tajikistan harbors the genetic base for numerous traditional crops, including barley (2 species: *Hordeum bulbosum* and *H. brevisubulatum*), chick-pea (3 species: *Cicer baldshuanicum*, *C. songoricum*, and *C. chorosanicum*), apple (2 species: *Mallus sieversii* and *M. semenovii*), pear (*Pyrus,* four species), onion (*Allium*, 84 species), pomegranate (*Pumica granatum*), almond (*Amygdalus* three species), currant (8 varieties of grape, *Vitis vinifera*). Perhaps 1880 varieties or cultivars of global significance are cultivated in Tajikistan. Many of these provide food for local peoples, forage, industrial products, medicines, and ornamentation. Biodiversity of agro-ecosystems is very significant with nearly 50% of cultivated crops in Tajikistan being of local variety. Local landraces and wild relatives undoubtedly contain valuable genetic adaptations to difficult environments. and natural resistance to diseases, and pests and as such constitute a valuable

source of genetic material, which may be of great importance for future germplasm enhancement programmes around the world. The Tajikistan's agricultural biodiversity is not only of importance to the livelihoods of rural communities, to the local economy and to local long-term food security, but also to global food security, particularly in light of the global challenges of climate change.

204. Tajikistan's strategy on conserving biodiversity has been traditionally very reliant on protected areas and as such the country has 21% of its area under protection. Over the past few years, there has been a strong and increasing shift in the approach for biodiversity conservation, to encompass productive landscapes and all fields of the economy, primarily in the agriculture sector. The National Action Plan and Report on Building Capacity to Implement Commitments on Global Environmental Conventions, a result of the National Capacity Self Assessment (NCSA) process in Tajikistan recognises the importance of restoring degraded agro-ecosystems. It also supports the application of traditional methods of agro-biodiversity conservation and its rational use. The document outlines as a priority the need for the improvement of the legislative base for the implementation of government policy on agro-biodiversity.

205. During the period of the Soviet Union, the combination of regulation, the dominance of state-owned farms and the availability of employment in other sectors, limited the expansion of agriculture in rural areas. There was an effective social security net, meaning nobody faced extreme poverty or hunger. Following the break-up of the Soviet Union, and the subsequent civil war, as the large communist factories closed down and the employment opportunities in the cities dropped, people returned to the rural areas and to dependency on wild natural resources. Over the past decade, this has greatly increased the demand of new land and harvesting rates, as most (75% of population) people in Tajikistan make their living through farming. This is exacerbated by the fact that many of the rural people are new farmers and not familiar with natural resources management practices. The underlying problem is the destruction of the agrobiodiversity due to the growing scale and changing nature of socio-economic activities, notably forestry, agriculture and harvesting wild plants. As a result of this, the globally significant agricultural biodiversity in forests, on pastures and on-farms is threatened. Preliminary analysis suggests that the main direct threats to globally significant agrobiodiversity of Tajikistan are:

206. Land Conversion to agriculture: The agricultural sector contributes up to 24.4% of Tajikistan's GDP. For the past ten years the amount of agricultural land in Tajikistan has significantly increased, primarily due to the development of dry and irrigated lands. This includes also the land previously considered marginal for cultivation and the use of agricultural crops of low productivity (e.g. wheat, flax, barley, bean, chick-pea) on vulnerable and unique ecosystem areas inhabited by globally important plants (e.g. persimmon, pea, grape, apple etc.). Farmers are increasingly ploughing pasture on steep lands in order to grow agricultural crops and so destroying the unique pasture ecosystems important repository of globally significant agrobiodiversity. The land can only be used for a short period, often only for 2-3 years, after which it degrades and is largely abandoned.

207. Climate Change: Climate change prognoses for Tajikistan (in accordance with the First National Communication to UNFCC) suggests that in the next half century temperatures will increase by, on average, an additional 2-3°C, including as much as 5°C, during the summer seasons. In recent years the regional increase of temperature from 0.5-2.5°C affected the pastureland productivity. Tajik glaciers have lost more than 20 billion m^3 of their ice volume (i.e. about 2.5%, affecting mostly small glaciers) during the 20th century. A further increase in temperature will accelerate glacial retreat. Thousands of small glaciers will disappear, thus reducing the flow of stored water that melts during the summer, at a time when irrigation is essential for farming. Climate change may also change precipitation patterns, causing more floods, droughts and other natural disasters. For many species of plants, such changes can be

disastrous if they are already at the edge of their tolerance level. More specifically, the observed aridization of climate due to steadily increasing air temperatures will lead to loss of soil moisture. Dehydrated soil becomes more prone to wind erosion processes. More frequently observed heavy rainfalls during short wet seasons wash the topsoil away. These processes induced by climate change contribute to land degradation and pose significant threats to local vegetation. FNC suggests that some observable changes are expected in all types of ecosystems by 2050 in Tajikistan. Warming will lead to changes in phenological parameters and may alter species composition of ecosystems. Climate change also poses a threat to the sustainability of local farming and rural development. Climate change induced threats include increased aridity, seasonal and inter-seasonal alterations of droughts and floods, and made worse by limited capacities of communities to cope and self-regulate. The result of the current vulnerability to climate-driven impacts includes threats to the stability of the agro-ecosystems, crop failures and increased food insecurity.

208. Habitat degradation and species loss as a result of overgrazing: In recent years, the livestock numbers are often above carrying capacity. The growth in poverty and lack of alternative economic opportunities mean that people keep large numbers of livestock to insure against future economic difficulties. In addition, given that veterinary facilities are poor in the region, farmers have to keep a large number of livestock, to be sure that enough will survive. The result of all-year-round overgrazing by livestock causes: (i) gradual disappearance of valuable fodder plants (such as *Astragalus*, *Potentilla*, *Oxitropis* and the others); (ii) genetic erosion of globally significant populations; (iii) decreased productivity; and (iv) pasture degradation through encouraging the invasion with alien species (*Acroptilon*, *Artemisia*, *Imperata*, etc.).

209. Over-harvesting: Present rates of exploitation are leading to a net loss of globally important tree species (e.g. pistachio, walnut, apple). Many globally important leguminous, decorative and medicinal species are found in pastures and forests and are considered the wild relatives of crops important for agriculture. As the levels of harvesting became unsustainable, many of the local non-timber forest products are threatened with local extinction. (NTFP) include: *Pistacia vera, Ziziphus jujube, Rheum,* etc.

210. The normative solution is that the considerations for globally significant agro-biodiversity and climate resilience are embedded into the agriculture policies and production practices and rural development at national and local levels in Tajikistan. At the same time, agrobiodiversity conservation can also become a solution to addressing climate change risks to the mountainous ecosystems and rural livelihoods of Tajikistan. However, there are several barriers hampering the achievement of the normative solution: (i) Systemic and institutional capacity weaknesses: The policy and legislative framework of Tajikistan is not fully supportive of the conservation and sustainable use of agro-biodiversity. Agricultural and Forestry policy is incomplete. What does exist, and what is being implemented in terms of programmes and plans, makes little reference to agro-biodiversity, and the need to protect it. Likewise, environmental policy, including biodiversity policy, does not include a provisions for agricultural biodiversity conservation. Given the importance in Tajikistan of agro-biodiversity, this is an important oversight. In addition, current agriculture and food production regulations do not consider climate change risks. Tajikistan at present does not have the institutional and policy frameworks to adequately adapt to the predicted effects of climate change. The dynamic of climate change at the national and local level is poorly understood and adaptation policy options haven't been identified. Moreover, there is no effective EIA or SEA (Strategic environmental assessment) system in place to ensure that projects, plans, policies and investments do not negatively impact agro-biodiversity. These barriers are compounded by inadequacies in the systems for coordinating conservation management with the regulatory functions of public production sector institutions. Coordination and collaboration between spheres of government responsible for land use planning,

decision making, and land management needs to be improved; (ii) Current coping measures and capacities of the rural communities are inadequate as climatic irregularities increase in frequency and intensity: Agricultural output in area with high agrobiodiversity in Tajikistan is extremely sensitive to changes in climatic conditions. Periodic droughts, floods, decline in moisture content in soils and other irregularities cause considerable stock losses and reduced agricultural production. The poor farmers and rural community are highly vulnerable to changes in climate variability and seasonal shifts. The farmers are already quite vulnerable to the changes in transition economy. The climate change related stressors further deteriorate their coping capacity. The extension services do not include support to enable farmers adequately respond and adapt to adverse effects of climate change. Knowledge of different characteristics of local varieties, which would greatly contribute to a farmer's food security, has been eroded during the years of the planned economy and at present is limited to selected staff in State-sponsored research institutions. Farmers have inherited the traditions of the Soviet system of agricultural production - dominated by the use of invasive and alien species under conditions of substantial application of agrochemical and water inputs. The lack of awareness about the characteristics of local varieties, combined with their scarcity in the field, constitutes a major barrier for their re-introduction on farm lands. Many farmers are 'new' farmers, who took up farming after the collapse of the Soviet Union. Given the long civil war following the collapse of Soviet Union, they still have not been able to develop their skills, and are still using out-of-date practices and technology and using varieties that are not adapted to climate change. This is furthermore complicated by the fact that the farmers in most cases do not have access to technical advice and are not aware of the risks posed by climate change to their food security. In most cases, farmers rely on advice from other farmers. As they are facing new challenges, typically local farmers do not have the answers. Hence, although the technical responses may be known, local farmers do not have access to this information and advice. In addition, the access to seasonal forecasts is very limited; and (iii) Market barriers: Local people do not understand or have access to the markets for agro-biodiversity. This is a barrier both to increasing the profit from existing products, and to developing new products. Further, even if a farmer has an idea to improve his agricultural or forestry practices, or to develop a new enterprise, in general the farmer is unable to access credit to finance the new practices. There is no credit system comprehensively covering rural Tajikistan, and therefore very little credit available in rural areas. Hence most farmers cannot develop new practices and techniques. The conservation of wild relatives of crop plants provides a unique challenge. Unlike traditional varieties of agricultural crops, wild relatives occur in non-domesticated ecosystems, though they may also occur as weeds on agricultural land. Although wild relatives have historically contributed to the immense present-day value of agricultural crops, they may typically have no current commercial value. This means there is little or no possibility of generating financial incentives for conservation of wild relatives through sustainable management and harvesting of their products. Yet the rationale for conservation of wild relatives is very strong. Under conditions of global environmental change, crop breeders need to produce new varieties that are adapted to environmental conditions not previously encountered in agricultural systems, and it is likely that wild relatives, which are adapted to more diverse and extreme conditions than those found in cultivated systems may harbor genes that will prove to be very valuable in adapting to global change.

211. The project will target globally significant plant agrobiodiversity in Tajikistan. The focus will be on an area of 1.5 million hectares in a productive landscape covering four districts and 36 sub-districts (*Jamoats*) with a total population of approximately 152,000. It will provide financial and technical support for the conservation and sustainable use of agro-biodiversity and will ensure that the additional threats imposed by the climate change are duly addressed through appropriately designed regulatory frameworks and farm-based adaptation practices.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:

212. The project is in line with the national priorities as defined in the following documents: (i) Poverty Reduction Strategy Paper (PRSP) and draft National Develpoment Strategy (NDS) These national development planning documents set out that agricultural production and natural resources will be the backbone of economic development and poverty reduction over the coming decade; (ii) The State Ecological Programme (1998 – 2008) targets the development of environmentally sustainable technologies to prevent errosion and other negative influences on biodiversity (including agro-biodiversity). It has also contributed to improving the awareness of the governmental decision-makers on biodiversity conservation issues. The programme promotes the harmonization of economic activities with biodiversity issues in Tajikistan; (iii) the National Strategy and Action Plan for Biodiversity Conservation (NSAP, 2003) defines the priorities and directions for the work on sustainable use and conservation of biodiversity. Particularly, the NSAP puts an emphasis on the sustainable use of agrobiodiversity; and (v) the National Action Plan and Report on Building Capacity to Implement Commitments on Global Environmental Conventions, a result of the National Capacity Self Assessment (NCSA) process in Tajikistan. This document recognises the importance of restoring degraded agro-ecosystems according to their previous structure. It also supports the application of traditional methods of agro-biodiversity conservation and its rational use. The document outlines the need for the improvement of the legislative base for the implementation of government policy on agro-biodiversity. In addition, the project is consistent with the Initial National Communication of Tajikistan, which identifies agriculture and local food production as important priorities. National Communication states that crop losses caused by climatic factors are much higher than ones caused by anthropogenic factors and other non-meteorological phenomena. For example, as a result of droughts in early 2000s, low precipitation levels and reduced snow stock, yield of cereals, in comparison with previous years, reduced by 10-30%. Heavy rainfalls and other extreme weather events in 2002 resulted in significant damage to the agriculture, estimated at tens of millions USD. Second National Communication is currently taking more detailed account of this priority and will therefore contribute to this project by providing adaptation baseline analysis.

213. The project will also contribute to meeting the objectives of national legislation on biodiversity conservation and development, including the following: (i) Environmental Protection Law; (ii) Law on Protection and Use of Plants; and (iii) Law on Ecological Expertise. These laws outline the state policies on nature protection and the promotion of agro-biodiversity. These laws promote both investment in the agro-biodiversity sector and cooperation with international agencies and organizations, which are all considered essential to improving the situation in Tajikistan's biodiversity sector. A specific reference is made to the development of a proper system for the management of agro-ecosystems. Over the past few years, there has been a strong and increasing shift in the value of biodiversity in all fields of the economy, primarily in the agriculture sector.

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS:

214. The proposed project is firmly in line with the guidance issued by the GEF with regard to strategic objectives in the biodiversity focal area as well as with the GEF's approach to mainstream adaptation into the other GEF focal areas. The project has been designed in line with Biodiversity Strategic Objective 2 (BD 2), '*Mainstreaming biodiversity in production landscapes/seascapes and sectors'* and the *Operational Guidelines for the Strategic Priority on Adaptation (SPA).* The project will contribute to achieving the main indicators under the BD2 strategic objective, namely: (i) mainstreaming biodiversity into agriculture sector; (ii) more than 1.5 million ha in production landscapes contributing to biodiversity conservation and sustainable use of its components; (iii) supporting the incorporation of biodiversity aspects into sectoral

policies and plans at both national and sub-national levels and into the implementation of regulations; (iv) mainstreaming biodiversity and climate resilience into UNDP's development assistance in Tajikistan represented by the US$ 20 million Communities Programme; and (v) contributing to the improved livelihoods of rural communities in Tajikistan based on sustainable use of agro-biodiversity.

D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

215. A key element of UNDP support to Tajikistan is the US$ 20 million Communities Programme. This is financed by UNDP, and the Governments of United Kingdom (DFID), the European Union (ECHO and TACIS), the World Bank, the Canadian International Development Agency, the Swiss International Development Agency, Government of Finland and others. By working closely with the Communities Programme, the present project will be firmly integrated into and coordinated with most of the development assistance awarded to Tajikistan. The project will build on the results of the UNDP Communities Programme which aims to develop local capacities in support of Tajikistan's Poverty Reduction Strategy Paper (PRSP). Within this Programme through the existing revolving funds, thousands of villages have gained access to micro-loans. This has given an opportunity for rural inhabitants to find an alternative source of income to farming, such as trade, services and handicraft. However, the Communities Programme does not focus on environmental protection or biodiversity, or to exploiting opportunities to sustainably harvesting agro-biodiversity.

216. The development of this project is coordinated and aligned with the CACILM initiative. The project will particularly coordinate its activities with two projects that are (or will be) implemented within CACILM initiative: (i) "Demonstrating Local Responses to Combating Land Degradation and Improving Sustainable Land Management in SW Tajikistan" - funded by GEF and implemented by UNDP which started in April 2007. The project is currently implemented by UNDP through its Communities Programme; (ii) "Rural Development in Tajikistan" funded by ADB and GEF - expected to start in 2008. Meetings and discussions have already been held (stakeholder workshop and meetings with Head of the Agency) with the representatives of the Agency on Sustainable Land Management, Geodesy and Cartography - which is a focal point on CACILM initiative in Tajikistan – and concrete mechanisms for cooperation and coordination will be developed during the project preparation stage. In addition, during the preparation phase, the project will actively collaborate and incorporate lessons learnt in the UNEP/GEF Regional project on "In Situ/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia" which covers all five countries of Central Asia. The objective of the UNEP/GEF project is ensuring *in situ*/on-farm conservation and utilization of horticultural crops and wild fruit species in Central Asia.

E. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING :

217. Under the baseline scenario, production activities and climate change will continue to pose an unmitigated threat to agro-biodiversity in production landscapes, where the bulk of the globally significant agro-biodiversity resides. The alternative situation is that the considerations for globally significant agro-biodiversity and climate change risks are incorporated into the agriculture policies and production practices and rural development at national and local levels in Tajikistan. At the same time, agro-biodiversity conservation can also become a solution to addressing climate change risks to the mountainous ecosystems and rural livelihoods of Tajikistan.

F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED, AND IF POSSIBLE INCLUDING RISK MEASURES THAT WILL BE TAKEN:

Risk	Risk rating	Risk Mitigation Strategy
National economic development stalls, and poverty strengthens in the project areas, thereby increasing pressure on natural resource base.	M	There is a realistic possibility chance that this will happen. However, by focussing project activities at the site level, and working with the Communities Programme, the project should ensure that the economy develops adequately at the project sites, and this national risk will therefore not affect the project strategy.
Sustainable use of biodiversity does not lead to sufficient economic gains at the project site, or the gains do not flow to the natural resource users who are currently degrading biodiversity. Hence, local poverty persists and poor people continue to unsustainably use biodiversity.	M	The project strategy attempts to address this medium risk head-on, by developing new products, developing market-based instruments and developing markets for these products. Moreover, by working with the Communities Programme (an existing democratic and representative mechanism), the project will ensure that the benefits are equitably shared
Access to credit for farmers in rural Tajikstan continues to pose a risk to the development of new practices and techniques to increase the economic benefits from agro-biodiversity.	M	No GEF funds will be used for micro-credits. The project will work very closely with UNDP Communities Programme which has as a key component the provision of support to credit and micro-finance initiatives. Through the existing revolving funds, thousands of villages have gained access to micro-loans. Until present, the pay back rate has been 100%. The project will ensure that credits are available for agro-biodiversity-friendly practices and products. These links have been already established as UNDP Communities Programme is the foundation of UN technical assistance for Tajikistan in support for the implementation of the Poverty Reduction Strategy and all the UNDP projects in the country are aligned with this Programme. In addition the project will ensure that the UNDP policy on the "Use of Financial Instruments for Global Environmental Management is followed in further design of the activities to facilitate the access to credit.
Land ownership and land access rights are not sufficiently clear. Hence the project strategy and incentives developed by the project are not effective.	M	The land certificate, ownership and access process is not complete. However, by choosing to work in areas where the Communities Programme is already active, where this issue has been overcome, this risk will be mitigated.
National policy does not quickly adopt the lessons learnt from the demonstrations at the sites.	L	The project will use existing mechanisms (e.g. through the Communities Programme, NBC) to ensure lessons learnt are transferred to national level. Where necessary, the project will complement existing mechanisms by developing its own bottom-up transfer mechanisms – e.g. working groups, seminars, or lobbying on specific issues.
Project successes are not maintained after the project, and are not replicated to other sites.	L	The project strategy focuses on (i) developing realistic polices based on grass-roots experience; (ii) working with the existing Communities Programme; and (iii) ensuring there are economic benefits. Together, these elements should ensure the sustainability and replicability of the project successes.
Climate Change: current vulnerability to climate driven impacts will pose threats to the stability of the agro-ecosystems, crop failures and will result in increased food insecurity		The project is designed to address the impacts of climate change on agrobiodiversity. As such will embed climate resilience thinking in the national policies, local development plans and will develop the capacity of farmers to better plan, so as to take into account the potential consequences of climate change.

G. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT:

218. The project will target the conservation and sustainable use of globally significant plant agrobiodiversity in Tajikistan. The focus will be on an area of 1.5 million hectares in four districts and 36 sub-districts (Jamoats) with a total population of approximately 152,000. The project is innovative in both national terms and in international terms. At the national level, given the nascent state of the market economy in Tajikistan and the low governance capacity, as of yet there have been no attempts to use governance reforms or market development to conserve biodiversity, or even to conserve natural resources. The project will attempt to do this, which is clearly very innovative. The project strategy is to strengthen regulatory frameworks to encourage market development and good governance by complementing ongoing 'market' and 'governance' reform initiatives under the Communities Programme. At the international level, the project uses a bottom-up approach to policy development and institutional development. That is, the project lessons at the grass-roots will clearly point to the required policy and institutional changes at the national level. This will ensure that future policy/institutional developments are fully responsive to actual needs, rather than being based on national level trends or international advice. Although this approach has been tried and tested internationally many times for poverty alleviation and rural development, this will be one of the first times it has been implemented for biodiversity conservation through a GEF project in central Asia.

H. JUSTIFY THE COMPARATIVE ADVANTAGE OF GEF AGENCY:

219. The project fully complies with the comparative advantages matrix approved by the GEF Council. The project builds on a very solid foundation of UNDP work in Tajikistan created by the US$ 20 million Communities Programme. This is a multi-year initiative aims to develop local capacities in support of the Poverty Reduction Strategy Paper (PRSP) of Tajikistan and is implemented by UNDP. The Programme develops capacity at Jamoat and district level to provide services to villages, communities and farmers. The Programme covers five areas of Tajikistan (namely: Aini/Zarafshan, Gharm/Rasht, Kulyab, Shaartuz and Sogd), including all of those in the proposed project area. At the moment UNDP has helped to establish 86 Jamoat Resource Centers (JRC) throughout Tajikistan. In a situation where the local authorities have very low capacities, JRCs play a very important role to improve the situation at the local level. A key component of JRC development and of the Communities Programme is the credit and micro-finance initiatives. Through the existing revolving funds, thousands of villages have gained access to micro-loans. This has given an opportunity for rural inhabitants to find an alternative source of income to farming, such as trade, services and handicraft. Until present, the pay back rate has been 100%.The Communities Programme is also supporting district level capacity building, and the strengthening of District Development Councils (DDC). The Communities Programme evolved out of the stability and reconstruction activities initiated during the civil war (1996). Accordingly, it did not have a strong emphasis on environmental protection. However, recently, more attention is being paid to environmental sustainability. In general, in the baseline, the Communities Programme does not focus on environmental protection or biodiversity, or to exploiting opportunities to sustainably harvesting agro-biodiversity.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the country endorsement letter(s) or regional endorsement letter(s) with this template).

Mr. A Kodiri Minister, GEF Political Focal Point	Date: 10 October 2007

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.	
John Hough Deputy Executive Coordinator, a.i.	Adriana Dinu Project Contact Person
Date: 7 November 2007	Tel. and Email: adriana.dinu@undp.org +421 905 428 238

PART II: Other agreements

Letters of co-financing

220. Attached as a separate file.

PART III: Terms of References for key project staff and main sub-contracts

221. The ToRs for key project staff and consultants are presented in Annex C of the CEO Endorsement Document.

PART IV: Stakeholder Involvement Plan

222. The project will implicate multiple and diverse institutions and organizations at the national and local levels. Table 10 below describes the major categories of stakeholders and their involvement in the project.

Information dissemination, consultation and similar activities that occurred during PPG

223. A series of consultations took place in Dushanbe, Kulyab, and at the field level in the Zeravfshan Valley involving most of the stakeholders listed in Table 10. The consultation process was led by the National Biodiversity and Biosafety Centre (NBBC), which will serve as the Executing Agency for the project and is the national institution charged with advising on policy and implementing programmes and projects related to biodiversity. NBBC is presently charged with the development of project documents related to the conservation and rational use of biodiversity; with guiding implementation of global, national and regional Strategies and Action Plans for the conservation and use of ecosystems, biological and genetic resources and protected areas; and with the development of recommendations for the use of biological resources reserves.

224. The process consisted of discussions with community representatives, national and local-level officials of the various government ministries and the agencies listed in Table 10. Substantial attention was paid to coordinating with international partners such as EU, DFID, SDC, FAO, and other international organizations working in Tajikistan.

Activities planned during implementation and evaluation

225. This project is predicated on the principle of 'working conservation'– where threatened germplasm is "put to work" and serves to enhance local livelihoods while benefiting the global community. Thus partnership with communities and other local actors (including jamoat and raion government) is a fundamental consideration of this project. Outcomes 2 and 3 in particular will require the full involvement of local communities in selected project sites, who will have a central role in efforts to conserve agro-biodiversity *in situ* and develop agro-enterprises based on this agro-biodiversity. Project stakeholders will be consulted at all stages of the project to ensure measures and incentives for conservation that are proposed by this project are sustainable and economically attractive to local populations.

226. Efforts at the *systems level* will be essential to improve the policy, regulatory and fiscal framework, and to strengthen inter-institutional partnerships and management.

227. Lessons and experiences emerging from the project demonstrations, will serve to feed and inform decision-making processes regarding the conservation and sustainable use of agro-biodiversity in the face of climate change in broader government.

Long-term stakeholder participation

228. A core project aim is to ensure long-term involvement in decision-making and implementation. This will be encouraged through support to the development of pilot activities (such as *in situ* conservation in home gardens based on the principle of "working conservation" described above, etc.) and through the development of opportunities for agro-enterprise development based on local agro-biodiversity. Opportunities for dialogue between policy makers and project beneficiaries regarding the conservation and use of agro-biodiversity will allow local needs and priorities to more effectively inform and influence national decisions.

Social issues

229. Reducing poverty, increasing food security, conserving biodiversity, adapting to climate change and enhancing livelihoods in Tajikistan all depend on sustainable agricultural development. Two thirds of the rural population relies on subsistence production on household plots, providing an estimated 50% of total household income in kind and in cash.

230. Engagement with jamoats and dekhan farmers to pilot *ex situ* and *in situ* conservation of globally significant agro-biodiversity using an environmental agro-climatic model such that sites will be paired with their year 2050 homologues, will enable people from, for example, site 1a will be able to visit and learn from site 1b, which will represent conditions at site 1a in the year 2050. Germplasm maintenance and exchange will allow farmers to gradually adapt to new conditions via the introduction of cultivars from homologous sites and promote community-to-community dialogue.

231. A project emphasis on agro-enterprise development (both nationally and internationally and perhaps in the area of certified organic fair-trade fruit and nut products) will seek to increase farmers' financial returns and ensure meaningful community based participation.

232. Core activities implemented by the project will ensure the participation of focus groups involving farmers, agro-biodiversity users (value and non-value uses), and women.

Table 7. Stakeholders and their roles

Stakeholder	Description	Role in project implementation
1. National Partners		
Committee on Environment Protection and Forestry	Provides implementation of nature-conservation policy and ensures sustainable use of nature.	SCEPF will be involved in the strengthening of national and local policy and legislative frameworks related to agro-biodiversity conservation and sustainable use; adaptation to climate change and agro-enterprise development.
Ministry of Agriculture	Formulates and execute policies of agricultural production.	The same as SCEPF, plus key role in facilitation of local efforts to conserve and use agro-biodiversity sustainably in light of climate change; and improvement of extension services to rural farmers focusing on conservation of 'traditional crops using traditional knowledge'.
Ministry of Economy and Trade	Preparation of national recommendations based an analysis of international instruments and trends of economic development.	The Ministry will play a role in developing economic instruments to stimulate development of environmentally friendly businesses in rural areas.
Agency on Land Management	Manages land reforms and privatization process; also GIS surveys	The Agency will support mapping, geo-referencing and recording of existing agro-biodiversity in Tajikistan.
Agency on Hydrometreology	Responsible for the implementation of Tajikistan's commitments to UNFCCC and for coordinating the overall activities in the climate change/adaptation to climate change sector.	The Agency will support efforts to provide communities with better knowledge and information about the effects of climate change and establish early warning/rapid response systems to deal with climatic shocks and the overall impacts of climate change on agro-biodiversity. It will link project efforts to Tajikistan's commitments to international conventions.
National Biodiversity and Biosafety Center	Implementation of activities linked with Tajikistan's commitments to UNCBD.	Executing Agency of the present project. Direct beneficiary of capacity building efforts.
National Center for	Responsible for establishing the	Support *ex situ* efforts to conserve Tajikistan's

Genetic Resources	national genebank.	agro-biodiversity through data collection, description, analysis, catalog composition and preparation for storing.
Institute of Botany	Responsible for the study of life forms of plants to assess the status of agro-ecosystems.	Provide updated recommendations to farmers of indicator species of plants that demonstrate resistance and ability to thrive in face of climate change.
Academy of Science of the Republic of Tajikistan	Provide scientific justification for priority activities on sustainability of nature use.	The Academy will play a scientific advisory role in the project.
Regional Government	Overall responsibility for economic and development activities within oblast boundaries.	Oblast Government will provide an important two-way linkage between national policy directives and local action.
District Government	Provide support to, and oversees, local economic and land use activities, mostly through Jamoat governments.	District governments will play an important role in supporting project implementation in selected sites. Direct beneficiaries of capacity development.
Jamoat Government	Provide support to, and oversees, local economic and development activities.	Direct beneficiaries of capacity development.
Jamoat Resource Centers	Supporting local governance, technical assistance and credit facilities.	Direct beneficiaries of capacity development.
Micro Finance Institutions	Ensure efficient, transparent and effective use of loans by communities in support of rural development and livelihoods objectives.	Direct beneficiaries of capacity development. They will allocate mobilized resources for community development projects in accordance with transparent criteria and policy priorities established through open consultation with the local community. They will also support local micro-enterprise and small business initiatives in accordance with transparent criteria and policy priorities established through open consultation with the local community.
Local farmers	Utilizing biodiversity, currently at unsustainable rates. Holders of traditional knowledge.	Direct beneficiaries of capacity development. Will participate in 'homologue' trials; in situ conservation efforts; and demonstrations of agro-enterprise development based on local agro-biodiversity. Will also be involved in management and planning processes relating to all aspects of the project; and will feed back needs and priorities into local and national decision making processes.
Local and national NGOs, such as Boghparvar and Zan va Zamin	Providing linkages between communities and government on issue relating to biodiversity conservation. Communications and awareness raising. Livelihoods and support for local women.	Support communications and awareness raising activities for the benefit of rural communities / farmers. Advocacy role to communicate agro-biodiversity and climate change imperatives to national government. Ensure the full participation of women in the present project.
2. International Partners		
UNDP Communities Programme (including DFID, EU)	The UNDP Communities Programme is a multi-year initiative that supports the implementation of Tajikistan's Poverty Reduction	The UNDP Communities Programme will enable the project to establish *in situ* conservation of agro-biodiversity, to strengthen partnerships and communication with rural civil

	Strategy and the United Nations Development Assistance Framework. The main objectives of the Programme are to enhance community participation in local development planning, management, and implementation; strengthen local level accountability, increase access to rural finance, and improve infrastructure and delivery of basic services. The programme also supports environment initiatives.	society and the local authorities; to implement policies and practices piloted at the local level; and through JRC-related micro-finance institutions, provide micro-credit, business development assistance, and extension services to help farmers establish sustainable agro-enterprises based on local agro-biodiversity.
GEF Small Grants Programme	SGP supports non-governmental and community-based organizations in developing countries with grants of up to US$50,000 in support of both GEF objectives and sustainable livelihoods. An SGP country programme for Tajikistan has been recently approved and will commence in mid-2009.	Close collaboration with SGP is envisaged in the implementation of Outcomes 2 and 3, described in detail below, with their respective foci on capacity development and development of agro-biodiversity based agro-enterprises.
EU/Tacis "Support to the Establishment of a National Agricultural Advisory Service" project	SENAS will focus on the development of an Agricultural Information and Knowledge system (managed by the Ministry of Agriculture) that includes information on agricultural production, marketing and finance, with targeted end-users being independent regional advisory organizations and the Union of Dekhan Farmers Associations. Focus areas include natural resource management, erosion control, sustainable and organic agriculture, and energy saving technologies.	The project will work with the SENAS initiative (through the widely available newsletter, web site, media events and seminars) to raise awareness around the importance of agro-biodiversity conservation and sustainable use; the likely impacts of climate change and strategies for adaptation; and possibilities relating to the development of agro-enterprise based on agro-biodiversity.
FAO	Secretariat for International Treaty on Plant Genetic Resources for Food and Agriculture, and obliged to support signatories in preservation of plant genetic resources.	It is hoped that FAO will provide support to the new National Genebank to strengthen national *ex situ* capacity within Tajikistan.

PART 1: Optional Annexes

(i) A List of Globally Important Species and Varieties in Tajikistan.

№	Names of species	Local varieties	Area of distribution
Grain-crops			
1.	Oats (*Avena barbata Pott.*)		Mogoltau, South, North Tajikistan at altitudes of 400 - 1300 m.
2.	Wild rye (*Secale silvestre Host*.)	"Chavdori romiti", "Chavdori pomiri", "Chavdori pomiri 180"	All over the territory of Tajikistan at altitudes of 500 - 2800 m.
3.	Sorghum (*Sorghum halepense (L.) Pers*.)		North, Central and South Tajikistan at altitudes of 400 - 1900 m.
4.	Wild-growing barley (*Hordeum spontaneum C. Koh.)*	"Chavi kabutak", "Surhak","Vatan"	North, Central and South Tajikistan at altitudes of 400-1800 m.
5.	Bulbous barley (*Hordeum bulbosum L.*)		All over the territory of Tajikistan except Pamir. At altitudes of 800-2700 m.
Leguminous			
1.	Field peas (*Pisum arvense L.*)	"Tochiki 10", "Zimistona"	Central Tajikistan and Pamir at altitudes of 800 - 2800 m.
2.	Baljuansky chick-pea (*Cicer baldshuanicum Lincz.*)		Central and South Tajikistan at altitudes of 1400-2700 m.
3.	Jungarsky chick-pea *(Cicer songoricum Steph.)*		Central and South Tajikistan and Pamir at altitudes of 2000-4100 m.
Wild fruits			
1.	Apple-tree *(Malus sieversii (Ledeb.) M.Roem)*	Pahtaseb, Peshpazak, Tiramohi surh, Maliki, Amiri, Tobistona, Zardseb, Safedseb, Shakarseb	All over the territory of Tajikistan at altitudes of up to 2500 m.
2.	Pear-tree *(Purys communis L.)*	Garmskij nok, Nashpotii zimistona, Sabznok, Surhnok, Zardnok	All over the territory of Tajikistan at altitudes of 900 - 2000 m.
3.	Pomegranate *(Punica granatum L.)*	Desertnyj, Bashkalinskij turush anor	South Tajikistan, Hissaro-Darvaz at altitudes of 600-1800 m.
4.	Fig tree *(Ficus carica L.)*	Vahshskij	All over the territory of Tajikistan at altitudes of 600-1900 m.
5.	Unabi (*Zizyphus jujuba Mill*.)	Vahsh, Gissarskij pozdnyj, Finik	All over the territory of Tajikistan at altitudes of 800-1300 m.
6.	Persimmon (*Diospyros lotusi L*.)		Hissaro-Darvaz at altitudes of 1100-1400 m.

№	Names of species	Local varieties	Area of distribution
7.	Almond (*Amugdalus communis L.*)		Tajikistan at altitudes of 800-1700 m
8.	Pistachio (*Pistacia vera L.*)	Al'bina, Orzu, Oktyabrskij, Gornaya zhemchuzhina	North, Central and south Tajikistan at altitudes of 600-1700 m.
9.	Walnut (*Juglans regia L.*)	Tadzhikskij-17, Tadzhikskij-25, Durmenskij-1, Skoroplodnyj, Gissarskij, Fajzabadskij	All over the territory of Tajikistan at altitudes of 1000-2700 m.
10.	Meier currant (*Ribes Meyeri*. L.)		Central, South Tajikistan and Pamir 2000-4300 m.
Wild-growing relatives of decorative herbaceous plants			
1.	*Tulipa subquinquefolia* Vved.	Tyulpan rodstvennyj, Tyul'pan Kaufmana	Hissaro-Darvaz at altitudes of 2000-2500 m.
2.	*Tulipa lanata* Regel		South, Central Tajikistan at altitudes of 650-2000 m.
3.	*Tulipa ingens* Hoog.		Zeravshansky ridge 1600-1800 m.
4.	*Tulipa mogoltavica* M. Pop	Tyul'pan mogoltavskij	North Tajikistan at altitudes of 500-1600 m.
5.	*Tulipa praestans* Hoog.		Central, South Tajikistan at altitudes of 1000-2000 m.
6.	*Tulipa subpraestans* Vved		South Tajikistan at altitudes of 700-2000 m.
7.	*Tulipa hissarica* M. Pop.		Hissaro-Darvaz at altitudes of 1300-3500 m.
Medicinal plants			
1.	*Hippophae rhamhoides* L	Zeravshanskaya, Garmskaya, Ishkashimskaya	All over the territory of Tajikistan at altitudes of 500 - 3000 m.
2.	*Ephedra eguistena* Bunge		North, Central and South Tajikistan at altitudes of 1800-2000 m.
3.	*Rosa nanothamnus* Bouleng	Kajsagul, Guli gulob, Kuragul, Ozudgul, Mirandi	All over the territory of Tajikistan at altitudes of 2000-3700 m.
4.	*R.beggeriana* Schrenk. in Fish		Tajikistan at altitudes of 400-3000 m.
5.	*R.maracandica* Bunge		All over the territory of Tajikistan at altitudes of 800-3200 m.
6.	*R.huntica* Chrschan		Central Tajikistan and Pamir at altitudes of 1400-3600 m.
7.	*Ungernia victoris* Vved		Hissaro-Darvaz valley of Khanaka river at altitudes of 1200-3000 m.
8.	*Rhus coriaria* L		Central Tajikistan at altitude of 1000-1600 m.
9.	*Crataegus altaica*		Central, South Tajikistan and Pamir

№	Names of species	Local varieties	Area of distribution
	Lange		at altitudes of 1500-3000 m.
10.	*C.songorica* C. Koch in Verh		Central and East Tajikistan at altitudes of 1000-1600 m.
11.	*Rhodiola heterodonta* Boriss.		All over the territory of Tajikistan at altitudes of 2200-4900 m.
12.	*Inula helenium* L.		North, Central and South Tajikistan at altitudes of 700-1200 m.
13.	*Origanum tyttanthum* Gonsch		All over the territory of Tajikistan at altitudes of 800-2700 m.
14.	*Peganum harmala* L		All over the territory of Tajikistan at altitudes of 400-3700 m.
15.	*Mentha asiatica* Boriss.		All over the territory of Tajikistan at altitudes of 800-1700 m.
16.	*Ferula kuchistanica* Korov.		All over the territory except for North Tajikistan at altitudes of 900-3500 m.
17.	*F.sumbul* Hook.		Central Tajikistan at altitude of 1500-2700 m.

(ii) The Homologue Approach

Particular species and varieties have particular environmental niches. The FloraMap™ Model and software package developed by CIAT (www.ciat.cgiar.org) determines where such niches of a particular species or variety are located (Jones and Gladkov, 1999). This algorithm used a climate probability model to determine the probable adoption range of a wild organism from a set of accession points derived from its natural distribution. The climate of each point of a calibration set was used in a principal components analysis to predict and map the probability of any point belonging to the composite climate model derived from the calibration set. The next challenge was to extrapolate from a single point and to include soil requirements into the model – as has been accomplished by the development of Homologue (Jones et al., 2005).

233. Homologue first answers, "Where else in the world is like my field?" and is based on a set of derivative FloraMap models from about 400 species previously analysed at CIAT. The models chosen were related to major world climates by their temperature range and the annual variance of temperature. Soils data were compiled from almost 4000 soil profiles stored in the WISE soils database (Batjes and Bridges, 1994; Batjes, 1995). Probability distributions were calculated for a range of soil characteristics and related to individual pixels at 10 arc-minutes from the FAO soils map of the world. A method of combining climatic and soils probabilities was derived and so Homologue can map the probability that anywhere in the world is similar to any given farmer's field. Homologue

234. Homologue used for current conditions answers two questions, "Where else is like this place?" And if we know a number of places where a particular variety does well, "Where is the envelope of places like the known ones?" This application will be applied to specific project site selection. To determine similar sites is relatively simple: the coordinates of initially selected project communities are used to create individual maps of Homologue probabilities for each site. These are then combined to form the Homologue "cloud" of the combined probabilities for a whole group of communities. Homologue creates the "cloud" by taking the set of shapefiles and constructing an output shapefile with the maximum value of the set for each pixel.

235. Homologue will then be used to identify currently existing communities that are today the same as what the communities selected above will look like in 50 years in the face of climate change. The 18 GCMs provide best bet estimates of how climate will change at the selected sites. Homologue will use the new climate values to then identify existing communities that are like the first set of communities – but in 50 years time and in the face of climate change. Farmers in the first set of communities will be able to visit those in the second set. The visitors will see their own futures; they will learn what they will and will not be able to grow; they will be able to see if conditions are the same, worse, or better, and in which ways. The visitors will be able to see what they will be using – what they will have as options in terms of agro-biodiversity. And they will be able over the next decades to obtain the germplasm that they will gradually need more and more. Forewarned through the project use of Homologue, farmers and communities will be forearmed. The initially selected communities can also "donate" to the future; and in so doing conserve their present agro-biodiversity by improving the futures of other communities. Homologue can be applied to determine which present day communities will be like our selected communities in 50 years time in the face of climate change. Those identified communities and farmers would then also get to see and gradually prepare for their futures in terms of agro-biodiversity.

(iii) Information about proposed Project Territories.

236. The Project will focus on four areas of globally significant agricultural diversity: Baldjuan, Shurobod, Rasht and Zeravshan. **The total project area is 1.5 million hectares.**

237. These sites were selected based on the following criteria:

- Presence of globally significant agricultural biodiversity (GBAS).
- The GBAS is threatened, but the level of the threats is manageable.
- The presence of ongoing activities to develop the rural socio-economy and to strengthen local governance – notably, the presence of activities supported by the UNDP Communities Programme.

238. The total population in the project sites is approximately 152,000 living in 36 Jamoats. The population is heavily dependent the services provided by local agro-ecosystems (including genetic resources in the form of agro-biodiversity). The project territory is characterized by very steep terrain, where the ecosystems and habitats change rapidly over short distances and alternate dominance of species. This variability has led to a series of microhabitats and microecosystems. Anthropogenic influences – such as the management of small farms, pastures, and open-access grazing and forest areas have exaggerated this natural mosaic.

239. The main ecosystems in the project area include:

- Mid-mountain xerophytic light forest ecosystems; dominated by pistachio, almonds, wormwood and forbs. These forests also contain wild relatives of barley, vetch, almond, persimmon, jujube, pomegranates, and grapes;
- Mid-mountain mesophyllic forest ecosystems; dominated by maple, walnut, willow and birch trees. These forests also contain wild relatives of apple, pear, cherry, plum, hawthorn, and barberries;
- Agro-ecosystems; small scale farms and orchards, growing fruit, vegetables, melons, cereals and forage. The emphasis is on local varieties of wild relatives – nearly 50% of cultivated crops in Tajikistan use local varieties. Almost all farmers in the area combine farming with livestock. Grazing is typically open-range, with the use of summer and winter pastures at different altitudes.

240. The global value of the biodiversity important to agriculture in the project area is illustrated by the following:

- It is the genetic base for numerous globally important crops, including barley (two types: *Hordeum bulbosum* and *H. brevisubulatum*), chick-pea (3 types: *Cicer baldshuanicum*, *C. songoricum*, and *C. chorosanicum*), apple (two types: *Mallus sieversii* and *M. semenovii*), pear (2 types), persimmon (1 type), onion (30 types), pomegranate (one type), almond (one type), currant (eight types) and many others;
- There are 1550 varieties of fruits and berries, including both cultivated and growing wild. These include apple (*Malus sieversii*), pear (*Pyrus korshinski*), apricot (*Armeniaca vulgaris*), plum (*Prunus darvasica*), persimmon (*Diospyros kaki*), sea-buckthorn (*Hippophae rhamnoides*) and currant (*Ribes linchevskii*);
- There are 463 varieties of vegetable-melons cultivated. These include onion (*Allium cepa*, *A.Rosenbachianum*), carrot (*Dauicus carota*), garlic (*Allium sativum*), melon (*Cucumus melo*), water-melon (*Cucurus aedulis*), cucumber (*Cucumus sativus*) and pumpkin (*Cucurbita aedulis*);
- There are 46 varieties of cereal and 39 varieties of food legumes cultivated. These include varieties of oats (*Avena barbata*), rye (*Secale silvestre*), sorghum (*Sorghum halepense*), peas (*Pisum arvense*) and lentil (*Iens orientalis*);
- There are 39 varieties of forage plants;
- There are 1850 varieties of decorative plants, mostly growing wild. These include tulips (*Tulipa affinis*, *T. tubergeniana*, *T. lanata*, *T. subpraestans*, *T. lehmaniana*); aster (*Aster serpentinontanus*),

narcissus (*Narcissus tazetta*), peony (*Paeonia intermedia*), saffron (*Crocus Korolkovii*), iris (*Iris darvasica*), camomile (*Matricaria aurea*) and carnation (*Dianthus seravschanicus*).

Baldjuan

Basic Data

241. The district is 900-2500m above sea level. The population is 23,200. The total area is 131,142 ha. There are six jamoats in this district: Tojikiston, Satalmush, Dektur, Lokhuti, Sarikhosor and Baljuan. There are presently no JRCs in the district. The main threats to biodiversity are the ploughing of land, cutting trees, pasture degradation and erosion.

Biodiversity and natural resources

242. The total area of Baldjuvan region is 132,665 ha from which 104 ha are irrigated lands, 4,520 ha are cultivated, 349 ha are gardens, 12 ha - grape-trees, 81,993 ha are in pasture, 81 ha – haymaking lands. Here, gardening and dry farming are mainly developed. This area is rich with valuable genetic resources of wild fruit plants (walnut, apple, apricot, plum, almond, haw, sea-buckthorn, etc.), cereals: oats, wild rye, wild barley, Baljuvan chick-pea, Khurasanski chick-pea, Kokand vetch, thin vetch, etc.

243. Population is cultivating the following cultural varieties: apple-trees sorts –pakhtaseb, maliki, karsahseb, dulak; pears - local amrud, sabznok, surkhnok; mulberry - safedtut, balkhi, siyohtut, shakhtut; cherry-tree - local pink-yellow; apricot-khasaki, kadukhurmon, and akhrori.

244. Local population breeds cattle, such as: tajik zebu type, Sweden; sheep - Gissar species, tajik, caraculs; goats – local coarse-haired; horses - lakays, tajik type.

245. Flora composition counts more than 1500 species of natural vascular plants Among them about 130 are endemic and 160 are rare and threatened species. Flora is rich and diverse. There can be found valuable communities of mesophile and xerophile forests with rich specific diversity (maple-trees, nut-trees, pistachio, almond trees, sea-buckthorn), having considerable economic importance for the region.

246. One of the unique areas in Baldjuvan is Sarikhosor tract, located on the South spurs of Vakhsh range in the valley of Shurobdarya river. The area is rich with flora and fauna diversity. Here dry farming and cattle breeding are mainly developed. Main ploughed lands are occupied by cereals and gardens. A plenty of local valuable genetic resources are focused here, namely wild fruit, and apple-tree varieties, pears, apricots, plums, sweet-cherries, nuts, grapes, etc. Among valuable and wild fruit the local population prefers sea-buckthorn, walnuts, hips, haw and mulberry. Mayor types of cereals are: barley, grain, oats and maize, etc.

247. Genetic resources are seriously impacted for the reason of intensive use of land resources, wild fruits and leguminous plants. Reduction of plants varieties and animal species productivity can be observed here. Therefore, the given area has been selected as the experimental site for improvement and research.

Socioeconomic context

248. Baldjuvan region is an agrarian area, here gardening, dry farming and cattle breeding are mainly developed. Agricultural activity plays a key role in the social sphere of the population. Total population number is 23,200 people. About 90% of people are occupied in agrarian sector. There are 108 dehkan's farms, three organizations of agroindustrial complex, 44 schools, 14 medical aid posts in the region. About 2% of the population gets occupied in national education and medical spheres. Average salary in agrarian sector comes to 15,36 Somoni.

249. This region is a part of Khatlon oblast. There exist 108 farmer's households, five agroindustrial complex's households (collective farms and state farms) in the region. All households are self-financing and experienced in farming and cattle breeding. There is an available potential and labor resources for development of agriculture in the region.

Shurobod

Basic Data

250. The district is 800-3000m above sea level. The population is 10 thousand. The total area is 228397ha. There are two jamoats in this territory, Dashtijum and Yol jamoats. Each has a JRC. The main threats are cutting trees, land conversion, pasture degradation and over collecting of wild fruits and medical plants.

Biodiversity and natural resources

251. It lies at dry, continental, subtropical climatic zone. All ploughed lands are occupied with wild fruit-bearing varieties; gardening, cereals growing and partially cattle breeding are mostly developed.

252. Main genetic resources for agriculture and forestry, typical for this area are: wild relatives of cereals, fruit-bearing and food plants, namely: *Pistasia vera, Celtus caucasica, Purus bucharica, Crataegus pontica, Juglans regia, Hordeum bulbosum, Avena sativa, Hordeum turkestanicum, Pisum arvense, Vicia tenuifolia, Vicia kokanica,* etc.

253. Within the jamoat's area typical flora types of Tajikistan are differentiated: xerophile forests, semisavanna, mesophile forests, juniper trees, meadows and small fragments of tugai forests. Withon flora composition one can met narrow-endemic plants species: Calophaca grandiflora, Sophora molis, Fraxinus sogdiana; subtropical wild species - Punica granatum, Ziziphus jujube, etc.

254. Over 200 useful plant species are marked at this area. About 958 vascular plants species relating to 490 genuses and 98 families are included in flora composition of the site; over 100 species are endemics, 39 species belong to rare ones and registered in the Red Book of Tajikistan.

Socioeconomic context

255. Here, dry farming is the main occupation of local inhabitants. 4231 people live in this area. Currently 56 farmer's households, 1 forestry household, and 15 schools and 10 medical aid posts are functioning here. Lands cover the area of 228397 ha, irrigated lands – 156 ha, gardens – 1540 ha, pastures – 88283 ha, haymaking lands – 406 ha. Average salary in agrarian sector is 14.5 Somoni. 56 farmer's households are registered in this area, occupying mainly with farming and gardening. There are wide opportunities for development of gardening, cereals growing, cattle breeding and bee-keeping.

Rasht

Basic Data

256. The district is among 1000-3000m above sea level. The population is 89,8 thousand. The total area is 461260ha. There are 10 jamoats in this territory: Khijborak, Obi-mehnat, Jafr, Navdi, Rakhimzoda, Kalai labi ob, Langari shokhon, Khakimi, Childara, Garm. There are 7 JRC in this territory. The main threats are cutting trees, ploughing up, cattle grazing, over-collecting of medical and food plants and road building.

Biodiversity and natural resources

257. Here, gardening, dry farming and cattle breeding are mainly developed. The region is rich with unique flora and fauna specific diversity. About 16 types of flora can be found here: semisavanna, xerophile forests, mesophile forests, juniper trees, meadows, steppes and gardens. Over 1203 plant species relate to 95 families and 522 genuses. About 200 types are endemic species. About 40 species are considered rare and registered in the Red Book of Tajikistan. Over 300 species are useful plants; 50 fruit-bearing species, 200 medicinal, 60 flowering, and 140 food species are typical for this area.

258. Among wild plants relatives one can find 30 species of cereals (bearded oats, hairy oats, wild barley and Turkestan barley), leguminous (field pea, djungarskiy chick-pea, oriental lentil, kokand vetch, sowing vetch), over 40 wild fruit-bearing plants (wild apple, pear, almond, walnut), 25 decorative species relatives (Korolkov's saffron, iris guga, great tulip, mid-size peon). Natural flora composition is marked by species having regional, global and local importance, such as: bulbous barley, barley, wild rye, pink shiryash, Korolkov's saffron, walnut, sea-buckthorn, Sivers' apple-tree, Pontiy's sea-buckthorn, lathyrus

mulkak, medicinal melilot, oriental lentil, hilly geranium, tanning sumach, bunium persicum, ferula sumbul and many others.

259. Currently, total area of Rasht region is 461260 ha: 6387 ha from these are irrigated lands, ploughed fields - 5366 ha, gardens - 1131 ha, grape-trees - 10 ha, mulberry gardens - 247 ha. Pasturelands cover 159587 ha, farming household lands occupy 2194 ha: from which gardens are 331 ha, pastures - 6510 ha. Total agricultural lands cover 9160 ha. A plenty of apple trees varieties are cultivated in gardens, such as: local sorts of pakhtaseb, tiramohi, khuboni, zardseb, karsakseb; pear - amrud, garm's pear, zardnok, sabznok; cereals – Hordeum, Triticum, Pisum, and Cicer. Climatic conditions of this area are very much favorable for dry farming, gardening and cattle breeding.

Socioeconomic context

260. Since ancient times, the local inhabitants of this region were occupied in agricultural sector, dry farming and forestry. About 80% of income in this region depends on agriculture and forest resources. Currently about 89,800 people inhabit Rasht region. There are 373 dehkan and farmer's households, 37 subsidiary households, three collective farms, 107 schools, 41 medical institutions. About 2,5% of population work in health care service and education. Average salary of the population in agrarian sector is 22,22 Somoni.

261. The region possess 24 households of agroindustrial complex, three collective farms, 373 farmer's households, 37 subordinate households, which are mainly directed to the development of gardening, dry farming, cattle breeding and bee-keeping. Agrarian households of the region have a potential and experience in gardening, cattle breeding for the further development of agriculture. It is important to note, that all households own some kind of machinery (tractors, cars, combine) to carry out the agrotechnical works and tillage.

Zeravshan

Basic Data

262. The district is among 900-3200m above sea level. The population is 29,200. The total area is 512,110 ha. There are 18 jamoats in this territory: Khurma, Rudaki, Amondara, Forob, Yori, Mogiyon, Chanorski, Shing, Urmetan, Shamtuch, Chimkurgan, Darkor, Kushteppa, Aini, Sujina, Fondaryo, Kosatarosh, Rarz. There are two JRC in this territory. The main threats are cutting trees, land conversion, pasture degradation and pasture pollution, and also erosion.

Biodiversity and natural resources

263. Zerafshan valley is one of the main regions, where agricultural resources diversity is widely spread. This valley is a part of Sugd oblast (Panjakent, Ayni and Matschinski regions). Zerafshan valley is the original, natural and ecological region, being the ancient agricultural area of Central Tajikistan. Zerafshan valley is rich with unique ecosystems with flora and fauna diversity: nival ecosystems, high-mountain deserts, meadows, juniper trees, mesophile forests, xerophile forests, semi-savanna, water and wetlands, agro-ecosystems. In the consistence of natural ecosystems, the original flora communities get expansion: deserts, meadows, tragakants, xerophyle forests, rocky talus vegetation. Zerafshan's flora basin counts 2588 species, belonging to 706 genus and 97 families. Flora composition counts more than 200 species of endemic plants, 40 rare and threatened species.

264. There were registered 300 species of useful plants, 120 medicinal species, 160 food species, 20 oil species, 44 wild fruits species. Flora is subjected to destruction on the part of the local population. The unique juniper forests are cut off systematically for construction needs and fuel. For reason of intensive cattle grazing in high-mountains, various types of tulip species, Gagea, crocus and other flora species became threatened. Agriculture in this region is developing for several millenniums. Here, all agricultural lands are occupied by cereal sowings, leguminous plants, and also gardening is developed.

265. Total land area is 515,820 ha, from which 3,114 ha are irrigated, gardens - 603 ha, mulberry 47 ha, pasture 141,792 ha. Total agricultural lands count 144,264 ha, from which 2,375 ha are irrigated. The

collective farm lands occupy 31560 ha from which 893 ha are irrigated. Ploughed lands count 9151 ha. Currently there are three collective farms: Tugral, Somoniyon, and Dusty. Mainly gardening and vegetable-growing are developed.

266. In the gardens and farm lands of the local population one can found the unique apricot species, such as Makhtobi, Safedak, Khodgamiri, Koshifi, Durafshak, Charbak, Kandak, Gulgunchai-Kursadik, Khudgandi and many others. Among them one can met naked-fruited sorts (luchak), specific for Zerafshan valley.

267. Moreover, here can be found many ungrafted forms (seeding), but with a sweet core. A plenty of peach sorts are spread: Luchak-shaftolu, Anzhir-Shaftolu, Khandalak-shaftolu, Shaftolui Kordi; plum species: yellow, black, red plums, Kabudcha and Koksulton; cherry-plum species: yellow, red and black cherry plum. There can be found good sorts of cherry-tree: yellow, black and red cherry.

268. Among fruit-bearing trees there can be found perfect by its taste qualities the sorts of seed species: apple trees of early ripening characteristics - Pakhta seb, Kand seb, Gulobi, Chak-chaka; late fall and winter ripening sorts: Tiromohi, Turush-seb, Sang-seb; pear-tree sorts: Shakar-murud, Turush-murud, related to early ripening sorts, and Noshputi, Surkhnok - winter sorts; quince sorts: Shirin-bihi, Turush-bihi and Samarkandi.

269. Special grape-garden collective farms and agrarian associations of Zerafshan valley are one of the first ones in the country being intensively engaged in the gardening. Here, the favorable natural conditions allow the development of gardening, wine-growing and grain-growing.

Socioeconomic context

(Ayni region of Zerafshan valley)

270. Local population here is mainly occupied with dry farming, gardening and cattle breeding. Key role in the social life plays agricultural activity, bringing main gross revenue for this area. Population's main income comes from gardening and cattle breeding. Here, the following households are functioning: 91 farmer's households, 13 subordinate households, 14 agrarian communities, three households of agroindustrial complexes. Average salaries in agrarian sector of the region count 19.45 Somoni. There are 135 schools, 65 medical aid posts (6 ambulatories). Population number's 219,200 people. Total area of the region is 367,133 ha, from them ploughed fields cover 19,972 ha, and gardens - about 3,192 ha

271. This region is a part of Sugd oblast. Here, currently four collective farms, three households of agroindustrial complexes, three cooperative households, 53 farmer's households. All households are self-financing and mainly deal with farming, gardening and cattle breeding. All the organizations have an experience in agrarian sector and potential for improvement agrobiodiversity state and development of agricultural activity.

(iii) Terms of Reference for Jamoat Resource Centres

Statement of objectives

Output 1.1: *Membership*

272. Jamoat Resource and Advocacy Councils are registered nongovernmental organizations (NGOs) established to promote local economic development, poverty reduction, transparency and accountability in local governance and civic education. They are a civil society organization providing economic development and poverty reduction services to inhabitants of Jamoats as well as local authorities. In working toward these objectives, JRCs emphasize an inclusive participatory process of decision making open to all members of their community.

273. Jamoat Resource and Advocacy Councils (JRCs) are comprised of representatives elected from among local residents. Elections are by secret ballot and held regularly for terms of office lasting two years. Each constituent village is represented on the JRC by at least one representative with proportionality to population. A team of executive board management is elected from among JRC members by means of a secret ballot. The board is to consist of a chairperson, deputy chairperson, secretary and bookkeeper. No individual shall hold a given executive office for more than two consecutive terms.

274. In addition to elected representatives, a designated representative of the local jamoat administration also serves on the JRC but is precluded from holding an executive board position. Also, specialists from the local community may be invited to participate on JRCs, but unless elected as a representative by eligible voters among the local population, these invited specialists participate as non-voting members of the JRC.

275. JRC membership shall include individuals from groups in the community otherwise underrepresented in formal governance structures, specifically women. An appropriate minimum target for the share of women representatives is one third of JRC membership.

Output 1.2: *Organizational structure*

276. In addition to the full JRC and its executive management team, the organizational structure of JRCs shall include subcommittees for specific areas of JRC activity. Separate subcommittees shall be formed for women's affairs, water supply, civic education, tendering of projects and other themes as relevant to the scope of JRC activities and community needs.

277. Subcommittees are delegated with responsibilities for holding regular meetings of the subcommittee to develop programme activities, discuss options, formulate implementation plans and prioritize projects. In addition, for matters pertaining to their subcommittee, they shall actively solicit public views and priorities, monitor project implementation, report on their work to monthly meetings of the full JRC and advice the full JRC of formal recommendations on any relevant decisions. Subcommittees shall also prepare quarterly and annual written reports on project activity and objectives, establish regular communication and coordination with UNDP area office staff, and develop cooperative relationships with counterparts in other JRCs. As subcommittees are specialized in their responsibilities, the head of each subcommittee shall be a specialist in the relevant field and his/her selection shall meet special criteria and be subject to a decision by the elected members of the JRC.

Output 1.3: *Scope of activities*

278. Under the close co-operation with UNDP and further development partners, and in close collaboration with District authorities, JRC will be responsible, inter alia, to:

- mobilize financial, material and human resources within the local community and from outside sources including private sector contributions, national governmental and nongovernmental organizations, international organizations and Micro Finance Institutions (MFI),
- facilitate the work of the MFI subsidiaries at local level to ensure efficient, transparent and effective use of loans;
- allocate mobilized resources for community development projects in accordance with transparent criteria and policy priorities established through open consultation with the local community,
- support local micro-enterprise and small business initiatives in accordance with transparent criteria and policy priorities established through open consultation with the local community,
- act as a resource of information and advocacy for local residents in areas such as civic education, legal rights and public assistance programmes,
- work with local government authorities to assist in formulation of a local economic development strategy and coordination of joint community development activities in accordance with the formulated strategy,
- represent civil society in its relationship with local government authorities by articulating public interests and concerns, by monitoring the decisions and actions of local government, and by measures to keep the public informed of local government decisions and actions, and
- communicate and coordinating JRC activities with other organizations, including UNDP area offices, other JRCs (and DDCs), other community-based organizations (CBOs) active in the region and international organizations involved in relevant local community development and governance programmes.

Output 1.4: *Operational procedures*

279. The conduct of JRC activities must be in compliance with the principles of inclusive, participatory and transparent decision-making. On a practical level, operating procedures must provide adequate opportunities for the community at large to be well informed of JRC objectives, issues on the agenda for JRC meetings, decisions taken by the JRC and planned programme activities. To satisfy these procedural requirements, both the JRC and its supporting village level organizations shall hold regular monthly meetings with the time, date and agenda being well publicized in advance. Written minutes of each meeting shall include a concise summary of all issues discussed and all decisions made by the JRC. These minutes must be made easily accessible to the public for their consideration and discussion.

280. As for the decision-making itself, to ensure a clear basis for accountability, the range of decisions made by the JRC shall be categorized into those requiring vote by the full JRC membership, those delegated to JRC executive officers and those delegated JRC subcommittees.

281. In addition to the regular monthly village level and JRC meetings, JRCs shall also conduct and/or participate in the following:

- quarterly presentations to the public on their activities and to solicit input from local residents,
- regular consultations with representatives of local CBOs/NGOs and local sectoral specialists (public health, education, infrastructure, etc.),
- monthly consultations with respective UNDP area office staff during their site visits,
- monthly UNDP area office coordination meetings for all JRCs in a region to report on JRC activities, discuss issues of mutual interest across JRCs, participate in training seminars, receive guidance for operating procedures and programme activities from UNDP area office staff, and develop contacts with representatives of other international organizations involved in local economic development and governance programmes,
- quarterly coordination meetings with UNDP national office staff and periodic site visits by UNDP national office to the JRC, and

- an annual conference for JRC executive officers to discuss common challenges and constraints, identify "best practices" in JRC management and programme activity, receive additional training, and consult ("network") with representatives of national and international organizations.

Output 1.5: *Output and performance measures*

282. JRCs shall prepare an annual statement of policy priorities, program objectives and specific outputs for both the immediate financial year and for a medium-term horizon of three years. These annual statements shall include a list of top policy priorities of sufficient specificity so as to be effective in guiding resource allocation. In addition to identifying the priority sector, the statement shall indicate objectives explaining the type of planned activity within that sector and how that contributes the goals of local economic development, poverty reduction or improvements in local governance. Corresponding to the stated list of priority sectors and objectives is a list of measurable outputs against which performance can be assessed at the end of the year. Finally, the statement shall also include an explanation of any substantial deviations or variances from stated objectives and outputs contained in the previous year's annual statement.

283. The list of policy priorities shall identify key sectors that shall be the focus of the coming year's community development activities. Corresponding to each selected priority sector shall be a statement explaining specifically how it shall contribute to the JRC's fundamental objectives of local economic development, poverty reduction and better local governance. This list of sectoral priorities includes the following items:

- agricultural water supply,
- drinking water supply,
- transportation and roads,
- electricity generation and supply,
- environmental protection,
- public education services,
- public health services,
- waste management services,
- agriculture production,
- craft and trade development,
- civic and legal education resources,
- capacity building for JRC management,
- strategic planning for jamoat development, and
- management and oversight for tendering of development projects.

284. Corresponding to the list of sectoral priorities, the statement of outputs shall include specific measurable targets relating directly to the selected priority areas. Corresponding to the sample list above, specific outputs might include the following:

- the length of irrigation canals rehabilitated or additional area of agricultural land receiving adequate irrigation,
- number of additional households provided with potable drinking water or number of new pumps installed,
- length of road surface rehabilitated or reduction in time or other costs associated with transporting goods or people,
- increase in hours for which electricity is available, reduction in number of outages, or number of additional households with access to electricity,
- increase in number of hectares protected from deforestation and better land management,
- number of school classrooms renovated, number of additional spaces for students, or increase in number of students regularly attending school,

- rehabilitation of a local health clinic, number of patients treated, or supply of basic medicines made available for distribution,
- municipalities have a functioning waste disposal services and protected waste depots,
- increase in volume of production or yield for specific crops, additional income generated from local agricultural production, or reduction in demand for food aid from local population,
- number of new enterprises or additional employment in craft and trade activities, or additional income generation from craft and trade activities,
- number of residents visiting the JRC for information resources or receiving assistance from JRC members for consultations or advocacy work
- number of competitive tenders successfully completed.
- completion of a local economic development assessment or strategic plan for the jamoat, and
- number of training days or seminars provided to JRC management

285. Outputs shall also be identified for routine operational activities related to the schedule of monthly and quarterly meetings for consultations with residents, local CBOs, jamoat and district administration officials, UNDP-CP area office staff, other JRCs or other national and international organizations.

Output 1.6: *Reporting on finances and performance*

286. Reporting on both JRC finances and performance is critical for the overall success of the programme and for ensuring adequate accountability on the part of the JRC. JRCs are required to prepare written monthly, quarterly and annual reports with appropriate levels of detail for each interval. These written reports shall be submitted on a timely basis to the respective UNDP area offices, and they shall also be made available to local residents. In addition, the JRC shall hold public presentations of at least the quarterly and annual reports.

287. To be able to satisfy the requirements for routine financial reporting, as well as for compliance with audit requirements, the JRC must maintain a complete set of records for all financial transactions in accordance with bookkeeping standards established by the UNDP.

288. Reporting on performance requires that the JRC examine programme activities for the appropriate reporting interval and compare actual activities with their statement of intended outputs. A brief explanation shall be included indicating whether programme activities are in line with the JRC's stated objective and intended outputs. If there are significant deviations from stated objectives and intended outputs, then the reasons for such deviations shall be given.

289. Submission of routine reports on JRC activities shall include copies of JRC meeting agendas and minutes.

Repeated failure to comply with these reporting requirements shall result in sanctions being imposed on the JRC.

Output 1.7: *Audits*

290. JRCs must be subject to both internal and external audits on an annual basis. The composition of the internal audit committee can be left to a decision of the full JRC membership, though it is advised that the internal audit committee at least include JRC members who are not part of the executive management team. The composition of the external audit committee shall include selected local residents who have recognized qualifications and financial, legal or managerial experience and expertise. They shall not be individuals who have been direct beneficiaries of an RLF or a recipient of any JRC contracts via the tendering of a community development project. UNDP area office staff shall also be included as part of the external audit team.

291. The results of the external audit shall be presented and copies made available to the public and UNDP area office staff for review on an annual basis.

(iv) Terms of Reference for Regional Micro-Finance Institutions supported by the UNDP Communities Programme

Statement of objectives

292. Regional MFI will be established in two forms, one in the form of Micro-Loan Foundation (MLF) according to the Law on MFIs is a registered public fund and non-for-profit micro-finance organization and the second in the form of Micro-Loan Organization (MLO), which is commercial organization registered whether as limited liability company or as closed type joint stock company intended to provide the access to local finance for rural poor and economically active population within the perimeter of the and the citizenship.

293. The Board is resregion. MLF and MLO act as legal entity after registration by Ministry of Justice and issue of certificate in case of MLF and license in case of MLO by National Bank according to the Legislation of Republic of Tajikistan.

294. The future direction for evolving the Jamoat resource Centers (JRC) Revolving Funds is a concern given the adoption of the new Microfinance Law in Tajikistan. The key issue is to address the institutionalizing the overall credit portfolio of JRCs across the breadth of the country in five regions. The most viable and feasible option was decided to be establishment of regional Micro Finance Institution (MFI).

Output 1.8: *Organizational structure and membership*

295. The organizational structure of the regional MFI consists of the Executive Board and the Board of Trustees for MLF and Board of Directors for MLO, which consists of founders and members. The founder of the MLF and MLO can be any of legal entities or individuals both resident and non-resident participation of whom are not banned by legislation irrespective of their place of registration, place of residenceponsible for managing its own activities. It must establish a process to select future Board members, orient these members to their duties, elect officers, run Board meetings, document decisions, and create Board policy. The Board is responsible for the financial survival of the MFI and the institution's stewardship of resources. It is also responsible for ensuring that the MFI is compliant with local laws and exhibits fiscal integrity.

296. The superior governance body of Regional MFI according to the present legislation of Republic of Tajikistan is Board of Trustees and/or Board of Directors, which consists of representatives of JRCs, representatives from UNDP and other interested organizations. Apart from above mentioned representatives, the members can be other individuals who are interested in development of region through microfinance activities.

297. The Board is responsible for determining the MFI's core purpose and core values. The Board must articulate the mission in such a way that it identifies the results the successful MFI plans to achieve. The Board is responsible to its stakeholders for preserving its stated mission.

298. The Board is responsible for creating, preserving and amending the MFI's bylaws—also called statutes and other names—in accordance with local law. It is also responsible for creating Board-level policies that complement these bylaws. The Board is responsible for hiring, managing and evaluating, and terminating, if necessary, the Chief Executive Officer (CEO). The Board ensures that the CEO operates the MFI in keeping with the MFI's mission and core values.

299. The Board has bottom line responsibility for the health of the MFI. For that reason, the Board may be required to assist the CEO in matters related to the growth and strength of the institution, such as, creating positive publicity, advocating for legal and policy changes, and raising funds.

300. Most commercial MFI's require that their Board members go beyond ensuring the financial survival of the organization. Shareholders usually demand a return on their investment. The Board is entrusted with representing these interests. Stakeholders that are not shareholders also want a return on

their time and commitment. Usually their return is in the form of a viable institution providing high-quality services.

301. Board meets every year for identification of the main direction of the regional MFI and to develop the strategy. The Ordinary General Meeting is held once year and the extraordinary meetings are held by decision of the two third numbers of the members with a one month public notice, to elect the quorum and their alternate substitutes. MFI membership should include JRCs Chairmen and whenever possible the membership of women will be ensured.

302. The following tasks are the exclusively under the competency of Board of Trustees and /or Board of Directors:

- Identification of main direction of activities of MFI and approval of plans and reporting on execution;
- Approval of strategic plan for development of MFI and financial products of Regional MFI according to the regional priorities;
- Approval of office record keeping and identification of organizational structure of MFI;
- Assignment and recall of presidium members and director;
- Analysis of Directors activities and the current management of MFI activities, approval and rejection of job contract with executive director;
- Identification and approval of remuneration of internal auditor;
- Review of Internal Auditor's Report;
- Setting up and approval of interest rate and change of it;
- Approval of internal procedures and regulations of MFI, and Credit Policy and Procedures;
- Approval of Annual Budget;

303. A team of executive board management is elected from among district population giving the evidence that they have the necessary qualification required according to the TOR and Job description developed by the Executive Committee based on the statutory documents of MFI. The board is to consist of an executive director, which should meet all the requirements of TOR and should be reviewed by the founders. The Executive Body of the regional MFI should consist of bookkeeper, office manager, cashier, legal advisor, reporting specialist, credit officers, portfolio manager, head of internal control unit, HR unit specialist, etc. This group shall constitute the executive board management

304. Board meets every year for identification of the main direction of the regional MFI and to develop the strategy. The Ordinary General Meeting is held once year and the extraordinary meetings are held by decision of the two third numbers of the members with a one month public notice, to elect the quorum and their alternate substitutes. MFI membership should include JRCs Chairmen and whenever possible the membership of women will be ensured.

305. A team of executive board management is elected from among district population giving the evidence that they have the necessary qualification required according to the TOR and Job description developed by the Executive Committee based on the statutory documents of MFI. The board is to consist of an executive director, which should meet all the requirements of TOR and should be reviewed by the founders. The Executive Body of the regional MFI should consist of bookkeeper, office manager, cashier, legal advisor, reporting specialist, credit officers, portfolio manager, head of internal control unit, HR unit specialist, etc. This group shall constitute the executive board management.

306. Elected founder members and the executive board members will meet at a minimum once every year at the general meeting. The general meeting will be chaired by the founders in a rotation basis. Only founders will be able to vote.

307. In addition to the full Board and its Executive Management team, the organizational structure of regional MFI also includes Credit Committee composed of credit experts, portfolio manager, executive director and credit officers from constituent Jamoats, and Internal Audit Committee.

Output 1.9: *Scope of activities*

308. In working toward the objectives stated above the regional MFI will engage in a wide variety of activities. The main task of the Regional MFI is to provide access to finance for rural inhabitants and to microfinance services for income generation and other entrepreneurial activities for increasing the household income.

309. These includes following:

- Provide efficient and effective financial services, such as credit, commodity/inventory collateralization, leasing, and innovative transfer/payment services;
- Undertake appropriate recruitment and retention of qualified professionals through transparent and competitive processes;
- Adopt continuous training and capacity building programmes to improve the skills of staff;
- Strictly observe their fiduciary responsibility, remain transparent and accountable;
- Make financial services accessible to a large segment of the potentially productive population which otherwise would have little or no access to financial services;
- Promote synergy and mainstreaming of the informal sub-sector into the national financial system;
- Enhance service delivery by micro-finance institutions to micro, small and medium entrepreneurs;
- Cover the majority of the poor but economically active population thereby creating jobs and reducing poverty;
- Eliminate gender disparity by improving women's access to financial services;
- Provide diversified, affordable and dependable financial services to the active poor, in a timely and competitive manner, that would enable them to undertake and develop long-term, sustainable entrepreneurial activities;
- Create employment opportunities and increase the productivity of the active poor in the country, thereby increasing their individual household income and uplifting their standard of living;

Output 1.10: *Operating procedures*

310. The conduct of Regional MFI activities shall be in compliance with the Law on MFIs, normative documents of National Bank of Tajikistan and the statutory documents for MFI. It also should follow the principles of sustainable growth through financial strength and bringing about a social good in the process. It should also keep the principles of inclusive, participatory and transparent decision-making. On a practical level, operating procedures shall provide adequate opportunities for the community at large to be well informed of MFI objectives, decisions taken by the Credit Committee to approve or reject the loan applications.

311. MFI can function on the basis of the Charter and Constituent Agreement adopted in accordance with requirements of Civil Code and Law on MFIs of Republic of Tajikistan. The Charter of the MFI should envisage that the main activities of this organization is microfinance activity with indication of those activities for which it has the right to do so and also those which are not prohibited by Law on MFIs and the Regulation on MFI. The capital fund of MFI can be transferred only to other MFI or State in case of liquidation and this should be emphasized in the Charter. The capital fund of the MFI can be formed from any grants or loans or donations made by residents or non-residents.

312. Reorganization or liquidation of MFI will take place in accordance with legislation of Republic of Tajikistan. MFI can be liquidated by the court by contention of NBT and recalling of certificate of MFI.

313. The regional MFI should disclose the information about the financial products and the interest rate for clients to be able to compare the services provided by other organizations. This information will be disclosed in signboards, which should be placed in the head office and in operational points in Jamoats.

314. Due to the peculiar characteristics of microfinance practice, a credit reference bureau, which shall provide information on microfinance clients and aid decision making, is desirable. In this regard, the

present Credit Bureau established by AMFOT shall be expanded to serve the needs of the microfinance sector.

315. In all the Jamoats, which will be the members of regional MFI, the cash-operational points without legalization will be established, where only one credit officer or agent will be active. One credit Officer will serve 250 clients. It is envisaged that in average 15-20 cash-operational points one per Jamoat will be established under each regional MFI. In each regional MFI it is assumed that 2-3 senior credit officers will work and coordinate the function of cash-operational points in Jamoats.

316. The activity of all credit officers will be managed by Operational Manager. His duties are market analysis, design of new financial products, improvement of loan procedures and preparation of information about loan portfolio for management purposes to the Executive Board and the Board of Trustees and/or Board of Directors.

317. For collecting and delivery of the cash to and from cash-operational points in Jamoats due to the long distance between regional MFI office and cash-operational points the existing banking system through whether Amonatbonk or Agroinvestbonk. For effective accounting and portfolio management the procurement accounting software of "1C: Bookkeeping + microcrediting" is planned. Based on the reports provided by cash-operational points the financial report automatically will be prepared by this accounting software.

318. The regional MFI will be equipped with necessary office equipment and office materials, which enable the preparation of needed procedural documents. The senior credit officers will be delegated to sign the contracts after revision of Credit Committee. For quick tracking of information the mobile phones will be used in order to get updated information between regional and cash-operational points in Jamoats.

Output 1.11: *The role of JRCs*

319. Apart from representation of JRCs in the Board of Trustees/Directors the relation of JRCs with regional MFI will be organized also in reviewing and recommending the list of potential borrowers from the perimeter of each respective Jamoats in close collaboration of Regional MFI's Credit Officer.

320. The role of JRCs though being squeezed in direct activities related with credits, will tightly involve JRCs in provision of credits to beneficiaries. The monitoring of all credit beneficiaries, if deemed necessary, still will require the active participation of JRCs representative, as they are elected by people themselves and the trust between people and JRCs is closer then to the MFI representatives. JRCs should assist MFI's Credit Officers in conducting monitoring and ensuring of payback.

Output 1.12: *Output and performance measures*

321. The MIX Market provides the information, which includes outreach and impact data, financial data, audited financial statements in addition to general and contact information, Donor/Investor portfolio data details financial instruments used, application and reporting processes, contacts and information on how to apply for investment, country information offers relevant social and economic development indicators in addition to regulatory information.

322. The regional MFI performance will be the subject of the MIX Market Indicators and the rating agency which provides information to sector actors and the public at large on micro-finance institutions worldwide, public and private funds that invest in microfinance, MFI networks, raters/external evaluators, advisory firms, and governmental and regulatory agencies. The MIX Market seeks to develop a transparent information market to link MFIs worldwide with Investors and Donors and promote greater investment and information flows.

323. MFI shall prepare an annual statement of specific outputs for both the immediate financial year and for a medium-term horizon of three years. In the stage of establishment of MFI there will be the

business-plan for 3 years minimum based on MicroFin software to identify the operational expenses and the income from interest rate, surplus from interest rates, etc.

Output 1.13: *Reporting on finances and performance*

324. Reporting on both MFI finances and performance is critical for the overall success of the programme and for ensuring adequate accountability. MFI shall prepare written monthly, quarterly and annual reports with appropriate levels of detail for each interval in accordance with National Bank of Tajikistan. These written reports shall be submitted on a timely basis to National Bank, and they shall also be made available to local residents.

325. To be able to satisfy the requirements for routine financial reporting, as well as for compliance with audit requirements, the MFI shall maintain a complete set of records for all financial transactions in accordance with book-keeping standards established by the NBT. A disclosure of reports shall be included indicating whether activities are in line with the MFI's stated objective and intended outputs in the Charter.

326. Micro-finance involves the activities, which are subject to fraud and mismanagement, either through inappropriate handling or inappropriate record keeping. The Board must ensure sound financial practice without micromanaging the CEO. The Board can best exercise this responsibility by working with the CEO on a number of policies and by taking its role seriously in:

- Retaining an excellent external auditor.
- Supervising the internal auditor.
- Supporting the CEO in hiring a controller.
- Supporting the CEO in financial management, management information system development, managerial accounting, and developing a risk management framework for ensuring adequate internal controls.

327. The MFI should conduct its accounting and financial statements in accordance with norms and regulations set by National Bank of Tajikistan. The list, form and the period for accounting reports, and also responsibility for violation are stated by the special normative acts of National Bank.

Output 1.14: *Audits*

328. MFI shall be subject to both internal and external audits on an annual basis. The composition of the internal audit committee shall be left to a decision of the full membership of Board. The reporting and the financial statement of MFI should be checked by auditing organization, which is licensed according to the legislation of Republic of Tajikistan for execution of this type of activity. The audit company shall include selected local residents who have recognized qualifications and financial, legal or managerial experience and expertise. The results of the external audit shall be presented and copies made available to the public for review on an annual basis. The audit checking of MFI will take place by the requirement of National Bank if the provided reports by MFI to National Bank raise doubts about authenticity, completeness and accuracy. The internal control of MFI should be conducted by the internal audit control unit, which should ensure the appropriate rate of reliability complying with the objectives of MFI.

SECTION V: SIGNATURE PAGE

Country: TAJIKISTAN

UNDAF Outcome(s)/Indicator(s): *(Link to UNDAF outcome., If no UNDAF, leave blank)*	Overcoming mountains — Natural resources sustainably managed and fewer persons killed or affected by disasters
Expected Outcome(s)/Indicator (s): *(CP outcomes linked to the SRF/MYFF goal and service line)*	same as in UNDAF
Expected Output(s)/Indicator(s): *(CP outcomes linked to the SRF/MYFF goal and service line)*	Managing energy and environment for sustainable development
Implementing partner: *(designated institution/Executing agency)*	National Biodiversity and Biosafety Center
Other Partners:	UNDP Communities Programme GEF Small Grants Programme

Programme Period: *1 January 2005 – 31 December 2009*
Programme Component: *Overcoming Mountains*
Project Title: *Sustaining Agricultural Diversity in the face of climate change in Tajikistan*
Project ID: *00070411* Award ID: *00057096*
PIMS 3647
Project Duration: 60 months (5 years)
Management Arrangement: National Execution

Total budget:	**$ 4,000,000**
Allocated resources:	**$ 2,400,000**
• GEF	$ 1,900,000
• UNDP TRAC	$ 500,000
In kind contributions	**$ 1,600,000**
• NBBC	$ 570,000
• UNDP (through CP)	$1,030,000

NAME	SIGNATURE	DATE
Agreed by Government:		
Murodali Alimardon, Deputy Prime Minister		22.06.09
Agreed by National Centre for Biodiversity and Biosafety:		
Neymatullo Safarov, Chairman of NCBB		22.06.09
Agreed by UNDP Tajikistan:		
Rastislav Vrebensky, UNDP Country Director		22.06.09

22.06.09