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TROPICAL FOREST AND BIODIVERSITY (FAA 118/119) ASSESSMENT



DECEMBER 2016

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FRONT COVER: An Ethiopian wolf hunts for rodents in the Afro-alpine Meadows of the Sanetti Plain. The wolf's drastic decline in 2015 due to canine distemper epitomizes the challenges Ethiopians face in balancing unique biodiversity with growing populations and expanding economic growth. Photo credit: Dr. Arianne Neigh

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ACRONYMS

AECP	Afro-Alpine Ecosystem Conservation Project
AGP AMDe	Agricultural Growth Program – Agribusiness Market Development
ATA	Agriculture Transformation Agency
AWF	African Wildlife Foundation
BMNP	Bale Mountain National Park
CAMP	Community Afro-Alpine Monitoring Project
CBD	Convention on Biological Diversity
CBNRM	Community-based Natural Resource Management
CDCS	Country Development Cooperation Strategy
CIDA	Canadian International Development Agency
CIFOR	Center for International Forestry Research
CITES	Convention on International Trade in Endangered Species
CRGE	Climate-Resilient Green Economy
CSE	Conservation Strategy of Ethiopia
DCA	Development Credit Authority
DFAP	Development Food Aid Program
DFID	Department for International Development
DO	Development Objectives
EBA	endemic bird areas
EBI	Ethiopian Biodiversity Institute
ECSNCC	Ethiopian Civil Society Network on Climate Change
EDRI	Ethiopian Development Research Institute
ELAP	Ethiopia Strengthening Land Administration Program
ELTAP	Ethiopia Strengthening Land Tenure and Administration Program
EMA	Ethiopian Mapping Agency
EOC	Ethiopian Orthodox Church
EPRDF	Ethiopian People’s Revolutionary Democratic Front
ERVL	Eastern Rift Valley Lakes
ESIA	Environmental and Social Impact Assessment

ESIF	Ethiopian Strategy Investment Framework
ETOA	Environmental Threats and Opportunities Assessment
EWCA	Ethiopian Wildlife Conservation Authority
EWCP	Ethiopian Wolf Conservation Program
FAA	Foreign Assistance Act
FAO	Food and Agriculture Organization
FDRE	Federal Democratic Republic of Ethiopia
GDP	Gross Domestic Product
GEF	Global Environment Facility
GERD	Grand Ethiopian Renaissance Dam
GGGI	Global Green Growth Institute
GGI	Green Growth Initiative
GHI	Global Health Initiative
GIS	Geographic Information System
GIZ	German Technical Cooperation
GoE	Government of Ethiopia
GOFORI	Godere Forest Initiative
GPS	Global Positioning System
GRAD	Graduation with Resilience to Achieve Sustainable Development
GRADuate	Graduating Families Out of Poverty
GTPII	Second Growth and Transformation Plan
HOA-REC	Horn of African Regional Environmental Center
HUNT	Hunting for Sustainability
IBC	Institute of Biodiversity Conservation
ICI	International Climate Initiative
IGAD	Intergovernmental Authority on Development
IIED	International Institute for Environment and Development
IMF	International Monetary Fund
INBAR	International Network for Bamboo and Rattan
IPP	independent power producer
IR	Intermediate Result

IUCN	International Union for the Conservation of Nature
JICA	Japan International Cooperation Agency
LAND	Land Administration to Nurture Development
LGP	Livestock Growth Program
LIFT	Land Investment for Transformation
LMD	Livestock Market Development
MECLA	Movement for Ecological Learning and Community Action
MEFCC	Ministry of Environment, Forest, and Climate Change
MERET	Managing Environmental Resources To Enable Transitions
MERET PLUS	MERET through Partnerships and Land Users Solidarity
MWIE	Ministry of Water Irrigation and Energy
NABU	Nature and Biodiversity Conservation Union
NGO	Nongovernmental Organizations
NIMS	National Incident Management System
NRM-FFS	Natural Resource Management through Farmer Field Schools
PA	protected areas
PCCSR	Peace Centers for Climate and Social Resilience
PFM/PRM	Participatory Forest Management/Participatory Rangeland Management
PHE	Population, Health and Environment
PLI	Pastoralists Livelihoods Initiative
PRIME	Pastoralist Areas Resilience Improvement through Market Expansion
PSNP	Productive Safety Net Program
REDD+	Reducing Emissions from Deforestation and forest Degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries
REEAP	REstoring Efficiency Agriculture Program
REILA	Responsible and Innovative Land Administration in Ethiopia
REVIVE	REstoring Vibrant Villages and Environments
R-PP	Readiness Preparation Proposal
RREP	Rural Resilience Enhancement Project
SDPASE	Sustainable Development of the Protected Areas System of Ethiopia
SIDA	Swedish International Development Cooperation Agency

SIMCOT	Simien Mountains National Park and Surrounding Areas
SLM	Sustainable Land Management
SLMP	Sustainable Land Management Program of Ethiopia
SLUF	Sustainable Land Use Forum
SME	Small and Medium Enterprise
SNNPR	Southern Nations, Nationalities, and Peoples' Region
STEM	science, technology, engineering and math
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP-GEF	United Nations Development Program—Global Environment Facility
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention for Climate Change
UNHCR	United Nations High Commission for Refugees
USAID	United States Agency for International Development
VCE	Value Chain Expansion
WASH	water, sanitation, and hygiene
WCS	Wildlife Conservation society
WFP	World Food Program
WHIST	Water Harvesting and Institutional Strengthening in Tigray
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

Ethiopia is characterized by its diversity and heterogeneity—ethnic, religious, linguistic, ecological, and biological. It is among the fastest growing economies in the world, with gross domestic product (GDP) growing at an average rate of over 10 percent between 2004 and 2014. To date this growth has been fueled by the development of natural capital; however, the growth trajectory has come at the expense of ecosystems—particularly forests—and ecosystem services—such as water regulation, water purification, and soil retention—that would otherwise help maintain the flow of services the country depends on. This development trend puts tropical forests and biodiversity at risk—biodiversity that, from an agricultural economy standpoint, may be an underexploited asset. It also exposes the overwhelmingly rural population to greater impacts from natural hazards that are likely to be exacerbated by climate change. From a climate change standpoint, development at the expense of forests and biodiversity could be considered maladaptive. At least with regard to forests, the Government of Ethiopia (GoE) has fully understood the risks and need for forest conservation, and these concerns have been integrated into national plans (i.e., Growth and Transformation Plan GTPII and Climate-Resilient Green Economy [CRGE]). It is within this context that the USAID Assessment Team conducted its assessment of tropical forests and biodiversity conservation needs.

This assessment complies with Sections 118 and 119 of the Foreign Assistance Act of 1961, as amended, and Agency guidance on country strategy development, under ADS 201.3.9.1, ADS 201.3.9.2, and ADS 204.

Specifically, the Assessment analyzes **direct environmental** threats and their **drivers** (i.e., root causes) as the means to identifying **actions necessary** for biodiversity and tropical forestry conservation. These necessary actions are discussed in terms of **opportunities for USAID programming** as USAID/Ethiopia prepares its second generation Country Development Cooperation Strategy (CDCS).

USAID is required to conduct a country-level climate change vulnerability assessment, in response to Executive Order 13677, as a part of the CDCS preparation process. Under a separate cover, the Assessment Team prepared a Climate Change Risk and Opportunities Report. The information presented in these two assessments can and should be used to inform the CDCS, project appraisal document, and project-level planning with respect to climate change.

Taken together, these two assessments provide recommendations for how best to protect the natural resource base needed for healthy communities, economic growth, and sustainable development, while minimizing the impacts of climate change on USAID's investments.

This assessment summarizes the current legal framework and important institutions for tropical forestry and biodiversity protection and conservation in Ethiopia (see Section 2) and the economic development context (Section 3). The assessment describes USAID programming (Section 4) and the state of the environment and natural resource management (see Section 5). This includes a description of biodiversity, forests, ecosystems and ecosystem services—along with key environmental trends and impacts of development. Environmental threats (Section 6) are described in terms of direct threats (i.e., direct human actions that harm biodiversity, tropical forests, and the environment) and their drivers.

The actions necessary to conserve and sustainably manage biodiversity and tropical forests (Section 7) are described and then linked to USAID strategy (Section 8). Section 9 discusses opportunities for USAID to achieve current Development Objectives and Intermediate Results, and Section 10 describes opportunities to work with the GoE and other stakeholders.

STATUS OF TROPICAL FORESTS AND BIODIVERSITY

Tropical forests are loosely defined as those located between the Tropic of Cancer and the Tropic of Capricorn (between 23.5 degrees N and S latitude). Ethiopia has 17 million hectares of forests comprising natural and planted forests and woodlands, with coverage of about 15.5 percent of the country. These forests and woodlands are seriously threatened by deforestation, habitat destruction, subsequent decline in regeneration, expansion of invasive species, agricultural expansion, and forest fires. The most important threats to forest genetic diversity are deforestation and forest fragmentation. A total of 103 tree and shrub species are considered endangered species, according to the International Union for the Conservation of Nature (IUCN) Red List.

Ethiopia's Protected Area system contains several categories, including national parks, wildlife reserves, and sanctuaries designed for the protection of wildlife resources, and controlled hunting areas and national forest

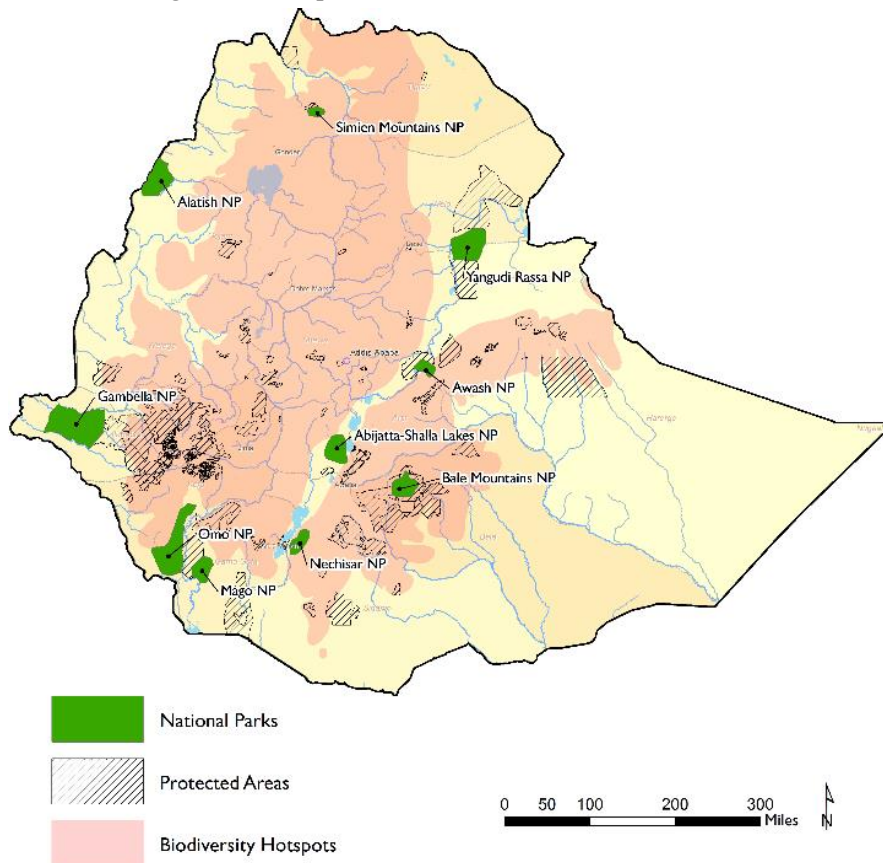


FIGURE ES I. STATE OF BIODIVERSITY

Almost all of the upland/highland parts of Ethiopia are part of internationally recognized biodiversity hotspots. While the Protected Areas network has grown over the past decade, key species and habitats are underrepresented in the network, and encroachment on Protected Areas is commonplace.

priority areas intended for the utilization of wildlife and timber resources. The overall effectiveness of most Protected Areas is low, as many areas are not legally gazetted, receive inadequate funding, are understaffed and ill-equipped, and fail to include local communities in decision-making and management.

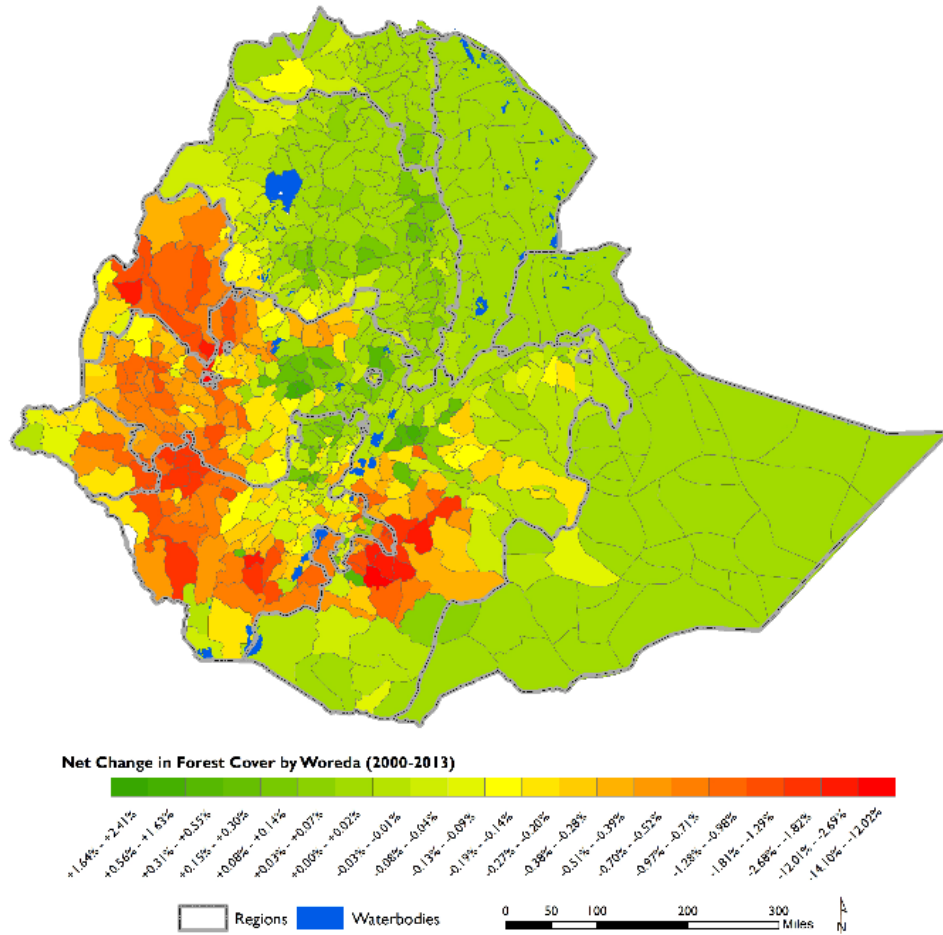


FIGURE ES 2. STATE OF TROPICAL FORESTS

Forest cover has increased (dark green) throughout many parts of Ethiopia following substantive government reforestation efforts. However, deforestation is an acute problem (red) in the western and southern regions of the country.

DIRECT THREATS, DRIVERS, AND NECESSARY ACTIONS

To identify the actions necessary to protect the environment and conserve natural resources, the drivers of the direct threats must be identified. The table below defines the driver of environmental degradation for each of the direct threats identified, based on the overall analysis of threats, stakeholder consultations, and documents reviewed.

To address each of the drivers, the assessment team identified the following actions necessary to enhance environmental protection and promote sustainable natural resource management.

ACTIONS NECESSARY LINKED TO DRIVERS AND DIRECT THREATS

Driver	Links to Direct Threats	Actions Necessary
<p>A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or adds to the occurrence or persistence of one or more threats.</p>	<p>A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.</p>	<p>Actions necessary to conserve biodiversity should address the drivers of the direct threats.</p>
<p>Water extraction/diversion with limited regulations or sustainability planning for industrial, agriculture, energy use</p>	<ul style="list-style-type: none"> • Salinization of irrigated lands • Drying of wetlands • Reduced river baseflow • Impaired water availability/access • Reduced aquifer recharge 	<p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Specific Action under IR 1.4 Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses.</p> <p>Specific Action under IR 1.5 Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides.</p>
<p>Lack of fertile farmland for those seeking farming as a livelihood Associated drivers:</p> <ul style="list-style-type: none"> • Lack of alternative livelihoods • Youth demographic bulge • Plot fragmentation • Inability to invest in inputs • Poverty • Food insecurity • Low productivity 	<ul style="list-style-type: none"> • Environmental degradation – loss of soil fertility/carbon, loss of biomass • Deforestation/range degradation • Agricultural encroachment • Habitat loss • Burning/fires • Fuelwood gathering/charcoal production 	<p>Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services.</p> <p>Strategic Recommendation #4. Promote development and diversification of the economy through support to small and medium enterprises (SMEs); focus on green business and banking solutions.</p> <p>Strategic Recommendation #5. Continue to promote community-based natural resource management (CBNRM) and participatory forest management/participatory rangeland management (PFM/PRM) that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.</p> <p>Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.</p>
<p>Inappropriate siting of settlements (refugees, government resettlements, villagization of pastoralists) Associated drivers:</p> <ul style="list-style-type: none"> • Poor rangeland management • Land clearing • Food insecurity 	<ul style="list-style-type: none"> • Poaching • Habitat loss • Fuelwood gathering/charcoal production • Exploitative forest resource use - cutting, brush clearing • Zoonotic disease • Deforestation/ range degradation • Agricultural encroachment • Overgrazing in sensitive areas • Reduced aquifer recharge 	<p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.</p> <p>Specific Action under IR 1.2 Contribute to ongoing efforts to protect and manage protected areas and surrounding forests as reserves of biodiversity, working with stakeholders using PFM/PRM and CBNRM.</p>

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Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or adds to the occurrence or persistence of one or more threats.	Links to Direct Threats A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	Actions Necessary Actions necessary to conserve biodiversity should address the drivers of the direct threats.
Rapid population growth (Expansion of peri-urban areas and urbanization) Associated drivers: <ul style="list-style-type: none"> • Poverty • Shoreline alteration • Food insecurity • Lack of accessible financial mechanisms for investment and savings • Lack of business opportunities and alternative livelihoods • Limited support for small and medium sized business, especially "green" business 	<ul style="list-style-type: none"> • Impaired water availability/access • Agricultural encroachment • Deforestation/range degradation • Improper solid waste management • Fuelwood gathering/charcoal production • Exploitative forest resource use - cutting, brush clearing • Zoonotic disease • Reduced aquifer recharge • Air and water pollution 	<p>Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p> <p>Specific Action under IR 1.3 Provide development credit authority (DCA) guarantees for ecotourism/green investments, which traditional lenders may consider risky.</p> <p>Specific Action under IR 2.2 Improve handling of liquid and solid waste and stormwater, particularly to protect ecology of receiving waters and assure sanitary landfill capacity.</p> <p>Specific Action under IR 2.3 Continue to support family planning services that directly address population growth threats, and indirectly protect biodiversity and conserve forests.</p> <p>Specific Action under IR 3.2 Invest in developing a climate-smart work force to support CRGE objectives, particularly those that can work at the zonal and woreda level.</p>
Industry development/mechanized agriculture in sensitive environments Associated drivers: <ul style="list-style-type: none"> • Mono-cropping/non-rotational farming • Greenfield development • Industrial air emissions – generators • Competition over land use • Shoreline alteration 	<ul style="list-style-type: none"> • Air and water pollution • Agricultural pesticide and fertilizer run-off • Loss of soil fertility • Greenhouse gas emissions • Reduced aquifer recharge • Salinization 	<p>Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation.</p> <p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p> <p>Specific Action under SO Support capacity building, training, and logistics for enforcement of environmental management plan monitoring at the zonal and woreda level, as ESIA follow-up and review are currently minimal.</p> <p>Specific Action under IR 1.5 Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides.</p>
Unsustainable use of pastoral resources and limitations on alternative livelihoods for pastoralists Associated drivers: <ul style="list-style-type: none"> • Poor rangeland management • Poverty 	<ul style="list-style-type: none"> • Overgrazing • Encroachment/grazing in protected areas • Environmental degradation – loss of soil fertility/carbon, loss of biomass • Deforestation/range 	<p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities to implement their mandate.</p> <p>Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem</p>

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<ul style="list-style-type: none"> • Limited modern financing and banking options • Cultural view of cattle as status, insurance, banking assets • Food insecurity • Lack of inclusive management • Lack of alternative feed/fodder sources or sustainable business around fodder production • Increased demand for animal proteins 	<ul style="list-style-type: none"> • degradation • Habitat loss • Burning/fires • Invasive species 	services. Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources. Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.
Climate change	<ul style="list-style-type: none"> • Erratic rainfall • Changing rainfall patterns • Altered agro-ecological zones • Inadequate stormwater management 	Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation. Specific Action under IR 1.4 Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses. Specific Action under IR 3.2 Invest in developing a climate-smart work force to support CRGE objectives, particularly those that can work at the zonal and woreda level.
Weak environmental policies/regulation enforcement Associated drivers: <ul style="list-style-type: none"> • Too many fishing permits • No or ineffective ESIA use and monitoring • Lack of attention to climate risk • Unmarked boundaries and unenforced regulations in protected areas/sensitive environments • Weak institutions • Lack of inclusive management • Limited baseline data on resources 	<ul style="list-style-type: none"> • Overfishing • Zoonotic Disease • Reduced water availability/access and quality • Land expansion/encroachment • Deforestation/range degradation • Air and water pollution • Agricultural pesticide and fertilizer run-off • Habitat loss • Drying/filling of wetlands • Improper solid waste management 	Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate. Specific Action under SO Support capacity building, training, and logistics for enforcement of ESIA and environmental management plan monitoring at the zonal and woreda level, as ESIA follow-up and review are currently minimal. Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands. Specific Action under IR 1.2 Contribute to ongoing efforts to protect and manage protected areas and surrounding forests as reserves of biodiversity, working with stakeholders using PFM and CBNRM. Specific Action under IR 1.5 Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides. Specific Action under IR 2.2 Improve handling of liquid and solid waste and stormwater, particularly to

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<p>Land tenure disputes and ambiguous land use rights Associated drivers:</p> <ul style="list-style-type: none"> • Lack of inclusive management • Limited baseline data on resources • Weak institutions 	<ul style="list-style-type: none"> • Encroachment/grazing in protected areas • Drying/filling of wetlands • Habitat loss • Deforestation/range degradation • Environmental degradation – loss of soil fertility/carbon, loss of biomass 	<p>protect ecology of receiving waters and assure sanitary landfill capacity.</p> <p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services.</p> <p>Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.</p> <p>Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.</p>
<p>Greenhouse gas emissions – burning, charcoaling, fuelwood use, industry, livestock methane Associated drivers:</p> <ul style="list-style-type: none"> • Lack of affordable electricity • Lack of energy options 	<ul style="list-style-type: none"> • Climate change • Changes in disease distribution / vectors for humans, livestock, crops and flora and fauna 	<p>Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation.</p> <p>Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p> <p>Specific Action under IR 1.3 Provide DCA guarantees for ecotourism/green investments, which traditional lenders may consider risky.</p> <p>Specific Action under IR 1.4 Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses.</p>

KEY RECOMMENDATIONS FOR USAID/ETHIOPIA AND ANTICIPATED OUTCOMES

Each of the necessary actions—regardless of the current status of USAID engagement—will support sustainable development, conserve natural capital needed for food security, and improve climate change resilience. Implementation of these actions will:

- Reduce environmental risks to USAID projects, improving the outcomes of U.S. government interventions
- Expedite progress towards objectives and anticipated results specified in the current USAID/Ethiopia Results Framework
- Support development consistent with the USAID Nature, Wealth, and Power Framework (see text box at the end of this section [USAID 2013f])

1. Continue contributing to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluating the effectiveness of GTPII/CRGE at the zonal, woreda (districts), and kebele (ward) levels.

Ethiopia’s CRGE strategy provides the country with a framework for moving toward a greener and more competitive low-carbon economy. The integration of both mitigation and adaptation actions into Ethiopia’s national policies, programs, and strategies is critical to shifting its development path. Economic growth remains the key focus of the GoE, so it is mainly viewed as a tool for off-setting greenhouse gas emissions rather than a paradigm switch to a green-based economy. Although there is a structure to manage CRGE and it has been mainstreamed across the GTPII, implementation of legislation, resolution of the apparent conflict between industrialization and green growth, and appropriately prioritizing the monitoring of CRGE effectiveness are still challenges.

Additional resources and technical assistance will be necessary to implement CRGE strategies in non-environmental ministries in particular. Ministries and offices are extremely strapped, but their participation in data collection and oversight of CRGE implementation at the local level will be necessary for full accounting of CRGE successes. Currently, for example, even obtaining estimates of forest cover necessary to measure progress toward GoE’s forestry goals is difficult, due to inconsistent definitions of forest types and lack of data accessibility. Technical capacity building for other ministries and civil society organizations with roles in CRGE will also be necessary. USAID is well positioned to work with CRGE staff, especially since agriculture, energy, and forestry are key sectors for their abatement potential. In cooperation with civil society groups such as SOS Sahel, Center for International Forestry Research (CIFOR), Farm Africa, and universities, USAID can provide institutional strengthening, capacity building, and technical assistance.

Rec #1 Links to current USAID Results Framework	Global Climate Change Initiative IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities IR1.3. Improved private sector competitiveness SO. Improved governance environment for sustainable development
Rec #1 Links to USAID Nature, Wealth, and Power Principles	N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W3. Create frameworks and incentives to improve alignment of public and private interests P2. Decentralize powers and responsibilities to representative and accountable authorities

2. Provide capacity building, institutional support, and logistics to regional/local authorities to help them implement their mandate and engage communities in cooperative management.

While legal and policy frameworks for the protection and use of natural resources are in place nationally, effective implementation is threatened by weak enforcement and differences in institutional architecture at the regional level and is exacerbated by a lack of community engagement and limited understanding of climate threats. These challenges then trickle down as regional offices determine zonal and district office mandates. In the past year, the GoE has established Offices for Zonal Environmental Protection as part of a reorganization that assigned authority for environmental protection and climate change to the Ministry of Environment, Forest, and Climate Change (MEFCC). However, there appear to be insufficient resources for these offices to conduct their direct duties and even fewer resources for outreach and capacity building. Most outreach has relied on outside donor funding.

Dependence of the economy and rural livelihoods on natural resources can lead to an exhaustion of the resources without appropriate management. As agricultural development intensifies and industry expands, key ecosystem services provided by the lakes will be further stressed absent regional and local capacity to protect water quality and integrate climate planning into agriculture, livestock, forestry, water and energy initiatives. The regulatory function of the local offices for environmental protection and natural resource management, which includes monitoring of the ESIA process, will be critical. In the Rift Valley, for example, dangerous pesticides are being applied to flower fields with minimal government control and enforcement. Local offices require support to address these activities and to encourage locals to commit to community management of resources. Community policing can also be utilized to report on such violations or to self-manage non-point source pollution and smaller-scale exploitation of resources.

USAID can focus on building capacity of regional and local institutional structures through technical assistance, pilot projects that inform programmatic changes, designation of geographic priority areas, staffing, and logistics support directly to Zonal Environmental Protection Offices. Such support could improve capacity for community outreach on environmental and climate change issues. Ideally, such outreach would elicit a commitment to mutually manage resources and to adapt income-generating activities to respond to climate change. Capacity building could jumpstart the translation of national and sectoral strategies into implementable and enforceable plans at the zonal and woreda level. USAID could also contribute to cost-benefit studies of proposed and ongoing forest management practices. With appropriate support, forests and biodiversity will receive competent oversight with attention to their intrinsic value.

Rec #2 Links to current USAID Results Framework	IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities SO. Improved governance environment for sustainable development IR3.2 Improved workforce skills development
Rec #2 Links to USAID Nature, Wealth, and Power Principles	N1. Safeguard natural capital's productive capacities N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management P2. Decentralize powers and responsibilities to representative and accountable authorities P3. Improve broadly based representation and continuous rural input on resource decisions P7. Strengthen public and private institutions for delivery of technical and intermediary services

3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services.

Historically, lack of secure land tenure has been a major barrier to private investment and agricultural productivity, but there has been less recognition that land tenure also plays a key role in forest management. Efforts through the Zonal Environmental Protection Offices have begun to certify land for industrial use and for agricultural production, but forests and wetlands are not being included in the certification process (at least in Oromia), which identifies land use rights. While the ecosystem services (e.g., water regulation/supply and timber production) forests and wetlands provide are extremely valuable, forests and rangelands are poorly managed as open commons and often exploited for subsistence or short-term economic gain.

USAID is already contributing significantly to improved land tenure systems through its property rights and resource governance work, first with the Ethiopia Land Tenure and Administration Program (ELTAP) and Ethiopia Land Administration Project (ELAP), and more recently the Land Administration and Nurture Development (LAND) project. USAID could, however, expand and support certification to conserve undervalued but biologically important ecosystems. Beyond slope, for example, standards for land use certification should include availability of groundwater and whether areas under consideration are buffer zones or receiving waters. Providing logistics support to the Zonal Environmental Protection Offices and building their capacity to perform certifications as mandated would advance the initiative for country-wide certification. There is also a need for policies that allow communities to engage in forest and wetland management, as well as policies that provide incentives to communities that protect or sustainably use these resources. Advocacy to improve property rights and planned sustainable land uses, in combination with

recommendations for continued participatory forest and rangelands management, will improve the conditions for economic growth.

Rec #3 Links to current USAID Results Framework	Global Climate Change Initiative IRI.1. Improved performance of the agriculture sector IRI.2. Increased livelihood transition opportunities IRI.3. Improved private sector competitiveness IRI.4. Increased resiliency to and protection from shocks and disasters SO. Improved governance environment for sustainable development DO3 Cross cutting. Governance/conflict mitigation
Rec #3 Links to USAID Nature, Wealth, and Power Principles	N3. Promote sustainable practices and systems that increase natural capital's productivity N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management W3. Create frameworks and incentives to improve alignment of public and private interests PI. Strengthen inclusive rural land and natural resource tenure systems, and procedural rights

4. Promote development and diversification of the economy, and alleviation of poverty, through support to small and medium enterprises (SMEs); focus on green business and banking/financing solutions.

While the CRGE strategy has been fully integrated into the GTPH, the actual mechanisms for green business development and promotion still need increased attention. The recommendation to support “green business” applies to businesses that are sustainable, non-extractive, and environmentally sensitive, as well as processes and products that have built in climate resilience and mitigation. Given these caveats, the types of businesses engaged could be broad, from natural forest products to post-harvest processes (e.g., drying of tobacco or coffee roasting that utilizes renewable energy) to small renewable energy schemes.

The industrialization of Ethiopia is primarily focused on large international businesses in the manufacturing and agricultural production sectors, with much less promotion of environmentally conscious development, especially in the “missing middle” (World Bank 2015). The World Bank addressed the issue of the gap in small business financing, recently announcing a \$200 million investment to support SME development through the Small and Medium Enterprise Finance Project (World Bank 2016). While activities to support SMEs in agriculture production have begun, private sector involvement across the entire agricultural value chain is weak, particularly for post-harvest processing, resulting in 35 percent losses post-harvest. Eliminating these losses with the help of SMEs would help achieve food security goals. For long-term success, especially in gaining access to international/export markets, these products or SMEs will also need transparent accounting of their green practices. This need for documentation can create space for SMEs in other sectors such as distribution, packaging, processing, and trade; however, training in these roles will be needed. Creating these additional jobs will overall reduce the number of households engaging in activities that destroy carbon stocks or emit greenhouse gases (e.g., charcoaling and livestock industry) and therefore meet objectives of the CRGE strategy.

Microfinance institutions have been largely serving individuals and ignoring SMEs (World Bank 2016b). Growing the SME market could encourage the banking sector to promote small business tools such as mobile money that are important for SMEs to thrive. Banking systems need to consider models that spur interest-free lending and a cultural shift away from the traditional use of livestock as an informal “banking” system. USAID is already making progress in improving access to finance with programs utilizing microfinance institutions and mobile banking in Somali, Afar, and Oromia regions.

Finally, the lack of electricity for cooking and household use, especially in rural areas, is a driver for deforestation and also contributes to long-term poverty. SMEs that promote innovation, financing, and diversification of the energy sector also could contribute significantly to the protection of forests. There is room for SMEs to work on local promotion of energy-saving technologies such as cook stoves, charging centers, and LED lighting, as well as to introduce alternative technologies (e.g., biochar stoves and mini-

hydropower). Support to SMEs selling these products could serve to spur job growth, and address the youth unemployment and landlessness issue.

Rec #4 Links to current USAID Results Framework	Global Climate Change Initiative IR1.2. Increased livelihood transition opportunities IR1.3. Improved private sector competitiveness IR3.2 Improved workforce skills development
Rec #4 Links to USAID Nature, Wealth, and Power Principles	N4. Promote climate- and socioeconomically resilient rural production systems W2. Invest revenues from resource extraction into creation of new assets and incomes W3. Create frameworks and incentives to improve alignment of public and private interests W4. Strengthen markets and the role of rural producers in competitive but non-extractive natural resource value chains P5. Integrate and empower women and marginalized groups to participate in management, decisions, and benefits P7. Strengthen public and private institutions for delivery of technical and intermediary services

5. Continue to promote community-based natural resource management (CBNRM) and participatory forest and rangeland management (PFM/PRM) that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.

One of the most obvious immediate threats to national parks and sensitive ecosystems in both the highland and lowlands is grazing, poor rangeland management, and illegal extraction of resources for household incomes. For example, while some level of traditional migratory grazing has always taken place on the Senatti Plateau, delicate soils and vegetation are being damaged because herders are bringing cattle further from drought-stricken lowlands; this damage is compounded by pressure from the growing local population. As climate changes, these lowlands may become inhospitable to grazing, creating additional pressures. Enforcement to prevent forest extraction has been mostly ineffective, especially in the absence of PFM or understanding of how these areas are contributing to the community good. Similar issues of overuse and resource extraction exist in forest areas. The need to build upon existing CBNRM and PFM efforts is critical for preserving the remaining forests and biodiversity hotspots in Ethiopia.

While notably a sensitive political topic, the implementation of grazing and afforestation policies and enforcement that are sensitive to community values, particularly for protected areas, is critical. USAID/Ethiopia has a long history of implementing activities that articulate the benefit of sustainable natural resource management at the local level: Pastoralists’ Area Resilience through Market Expansion (PRIME) (for rangelands), Food for Peace through the Productive Safety Net Program (PSNP), and Feed the Future involvement in the Agriculture Growth Program (AGP), especially for coffee and honey. Other activities supported by USAID PFM/PRM programs include seed production, seedling trees, fodder production, fattening, and natural products. These practices can be expanded in target areas, especially around protected areas. Protected status alone often does not prevent unsustainable use of resources, so other use rights that are sensitive to local needs rely strongly on PFM/PRM principles. As a result, there would be a higher priority on resource value and an emphasis on rangeland management for improvement of livelihoods, enforcement of grazing boundaries, and targeting alternative livelihoods for those individuals through CBNRM and PFM.

Rec #5 Links to current USAID Results Framework	<p>Global Climate Change Initiative</p> <ul style="list-style-type: none"> IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities IR1.4. Increased resiliency to and protection from shocks and disasters SO. Improved governance environment for sustainable development DO3 Cross cutting. Governance/conflict mitigation
Rec #5 Links to USAID Nature, Wealth, and Power Principles	<ul style="list-style-type: none"> N1. Safeguard natural capital's productive capacities N2. Encourage restoration of degraded or "low-potential" lands and other natural capital N3. Promote sustainable practices and systems that increase natural capital's productivity N4. Promote climate- and socioeconomically resilient rural production systems W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W3. Create frameworks and incentives to improve alignment of public and private interests W4. Strengthen markets and the role of rural producers in competitive but non-extractive natural resource value chains P3. Improve broadly based representation and continuous rural input on resource decisions P5. Integrate and empower women and marginalized groups to participate in management, decisions, and benefits

EXTENT TO WHICH NECESSARY ACTIONS ARE SUPPORTED BY USAID/ETHIOPIA PROGRAMS

Sections 118 and 119 of the FAA require an analysis of the extent to which the actions proposed for support by the Agency (i.e., recommendations) meet the needs identified. This Assessment focuses on identifying opportunities for the technical offices to contribute to environmental protection while achieving their core development objectives. This approach is consistent with other FAA 118/119 Assessment. Therefore, the following table identifies where contributions are being made or could be made by the USAID/Ethiopia programs.

O = OPPORTUNITY FOR USAID, ACTIVITIES ARE NOT CURRENTLY MEETING THE NEED, BUT COULD IN FUTURE PROGRAMS

+ = PROGRAMS CONTRIBUTE TO MEETING THE NECESSARY ACTION

STRATEGIC RECOMMENDATIONS (abbreviated)	Agriculture and Food Security and Nutrition	Democracy and Human Rights	Economic Growth and Trade	Education	Global Climate Change	Gender Equality and Women's Empowerment	Global Health	Power Africa	Water	Humanitarian Response
1. Contribute to GTPII and CRGE objectives, provide assistance with monitoring and evaluation at the zonal, woreda, and kebele levels	+		+	O	+		O		+	
2. Provide capacity building, institutional, and logistics support to help regional/local authorities implement their mandate	+	+	+	O	O			O	O	
3. Strengthen land tenure, land certification, and land use planning	+	+	O					O	+	
4. Support economic diversification through support to SMEs	+		+			+				
5. Continue to promote community-based and participatory forest and resource management	+	+	+		+			O	O	O

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I.1 INTRODUCTION

I.1 PURPOSE AND SCOPE

The purpose of this Assessment is to conduct a country-wide assessment of biodiversity and tropical forestry conservation needs for the purposes of complying with Sections 118 and 119 of the Foreign Assistance Act (FAA) of 1961, as amended, and Agency guidance on country strategy development, under ADS 201.3.9.1, ADS 201.3.9.2, and ADS 204.

Specifically, the Assessment analyzes **direct environmental** threats and their **drivers** (i.e., root causes) to identify **actions necessary** for biodiversity and tropical forestry conservation. These necessary actions are discussed in terms of **opportunities for USAID** programming as USAID/Ethiopia prepares its second generation Country Development Cooperation Strategy (CDCS).

The Assessment Team (see Annex E for a description of the team) considered climate one attribute of the biophysical environment, and therefore the Assessment considered climate change primarily as a factor exacerbating existing environmental threats and vulnerabilities. Specifically, the Assessment Team considered the impacts of increased greenhouse gas emissions as drivers of primary threats to forests and biodiversity.

USAID is required to conduct a country-level climate change vulnerability assessment, in response to Executive Order 13677, as a part of the CDCS preparation process. Under a separate cover, the Assessment Team prepared a Climate Change Risk and Opportunities Assessment. That assessment addresses, in greater detail, the threats posed by climate change, with a particular focus on when and how USAID Development Objective (DO) teams can productively integrate understanding of climate change impacts into their programs and the extent to which existing programs can make adjustments to help mitigate the effects of global climate change. While neither the Climate Change Risk and Opportunities Report nor this biodiversity assessment completely covers the stand-alone strategic level-climate vulnerability assessment as required by ADS 201 Mandatory Reference, concurrent with this assessment, USAID/Ethiopia is preparing the Climate Risk Screening and the CDCS Climate Annex that will comply with the executive order and associated USAID guidance.

However, **the information presented in these two assessments can and should be used to inform the CDCS and project appraisal document and project-level planning with respect to climate change.**

Taken together these two assessments provide recommendations for how best to protect the natural resource base needed for healthy communities, economic growth, and sustainable development while minimizing the impacts of climate change on USAID's investments.

This assessment supersedes the 118/119 Biodiversity and Tropical Forests Assessment completed in 2008.

DIRECT THREATS

The proximate human activities or processes that have caused, are causing, or may cause the destruction, degradation, and/or impairment of biodiversity targets (e.g., unsustainable fishing or logging). Direct threats are synonymous with sources of stress and proximate pressures. Threats can be past (historical), ongoing, and/or likely to occur in the future.

DRIVERS

The ultimate factors, usually social, economic, political, institutional, or cultural, that enable or otherwise add to the occurrence or persistence of proximate direct threats. There is typically a chain of contributing factors behind any given direct threat. In a situation analysis, these factors are often subdivided into indirect threats (factors with a negative effect, such as market demand for fish) and opportunities (factors with a positive effect, such as a country's land-use planning system that favors conservation).

Source: Salafsky et al. (2008).

I.2 METHODOLOGY

The Assessment Team conducted the Assessment in three partially overlapping phases: desk research, stakeholder consultations, and analysis. The Assessment Team started with a one-week desk review of available information on socioeconomic issues, ecology and conservation, environmental management, and USAID programming in Ethiopia. This information was used to draft a pre-field report—to identify key resources and gaps in knowledge—and inform in-country stakeholder consultations. This desk review was completed concurrent with preparations for the three-week field missions.

Stakeholder consultations started in Washington, D.C., and included USAID environment staff (e.g., the Bureau Environmental Advisor, Bureau Climate Advisor, and Office of Forestry and Biodiversity staff).

An in-country segment started on July 13, 2016. This in-country segment began with an in-brief at USAID/Ethiopia (July 14, 2016) and ended with an out-brief delivery of key findings and recommendations (July 28, 2016).

The Assessment Team facilitated a half-day stakeholder workshop in Addis Ababa with participants representing nongovernmental organizations (NGOs) and research institutions. During the workshop, the Assessment Team solicited input on the need to consider additional environmental issues in preparing the Assessment. The results of the workshop’s small-group exercise were used to validate the assumptions, key environmental threats, and opportunities identified through the desk review and initial stakeholder interviews. A secondary goal of the workshop was to foster a consensus among USAID and other environmental management actors on environmental issues and actions needed to achieve sustainable development.

The field visits, held from July 19th to July 26th, focused on interviews and stakeholder consultations. The objectives of the field visits were to “ground-truth” the Team’s preliminary findings and appropriately expand the scope of assessment to that of a full Environmental Threats and Opportunities Assessment (ETOA). This phase included visits to Bahir Dar and environs, Hawassa, Shashamene, Bonga, Goba, Robe, and Bale Mountains National Park, which were selected based on work planning investigations of areas with a) important forest resources under threat; b) hotspots of biodiversity; and c) programs in which USAID or other donors were operating. The majority of meetings were held with government of Ethiopia (GoE) entities and civil society. A complete list of meetings held is provided as Annex A.

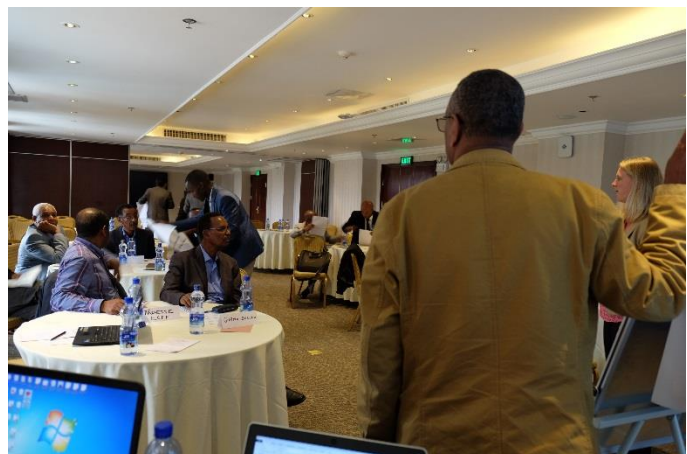


Figure 1. Natural resource management thought leaders collaboratively working through environmental threats in Ethiopia at the half-day workshop

This Assessment was finalized based on updated literature, geographic information system (GIS) analysis, stakeholder consultations (Annex A), and USAID comments and feedback on the draft consistent with the approved scope of work.

Given either limited availability of representatives or limited time the Assessment Team attempted but was not able to meet directly with:

- Ministry of Agriculture and Natural Resources
- National Meteorology Agency
- Agricultural Transformation Agency
- Bureau for Mines and Energy and Bureau for Water and Irrigation – Robe
- UN Food and Agriculture Organization (FAO)
- World Bank
- Ethiopia Wolf Conservation Project
- Farm Africa – Robe
- RIPPLE – Hawassa
- Horn of African Regional Environmental Center (HOA-REC)
- Ethiopian Development Research Institute (EDRI)
- Dr. Zinabu Moreda – Hawassa University
- Village-level leaders

CONSISTENCY WITH USAID’S BIODIVERSITY POLICY

For additional resources, see the USAID Biodiversity and Development Handbook (USAID 2015a). This Handbook is a fundamental tool for implementation of USAID’s Biodiversity Policy, which was approved and launched in 2014. The USAID Biodiversity Policy outlines how the agency will achieve sustainable, resilient development by conserving biodiversity. The Handbook provides guidance for integrating biodiversity into agency programming (including agency programming in other development sectors, drawing on a wide range of USAID programming experiences in forestry, marine and coastal programming, community-based natural resource management, conservation enterprises, and multi-sectoral approaches).

2. LEGAL FRAMEWORK AND INSTITUTIONAL STRUCTURE AFFECTING TROPICAL FORESTS AND BIOLOGICAL DIVERSITY

This section will provide an overview of the governance of Ethiopia in terms of the key institutions, policies, and laws affecting the sustainable management and conservation of biodiversity, forests, and ecosystems, summarizing enforcement and effectiveness.

2.1 INSTITUTIONS AND LEGAL FRAMEWORK

2.1.1 FEDERAL AND REGIONAL GOVERNMENT INSTITUTIONS

Frequent restructuring of both federal and regional institutions has been a typical exercise in Ethiopia, with restructuring taking place in multiple ministries at the time of the ETOA.

2.1.1.1 FEDERAL-LEVEL INSTITUTIONS

The three major current environmental institutions with implications for forests and biodiversity are the Ministry of Environment, Forest, and Climate Change (MEFCC), the Ethiopian Biodiversity Institute (EBI), and the Ethiopian Wildlife Conservation Authority (EWCA).

Ministry of Environment, Forest, and Climate Change: MEFCC has the powers and duties previously given to the Ministry of Agriculture (now the Ministry of Agriculture and Natural Resources) with respect to forestry issues. The previous Environmental Protection Authority has been replaced by MEFCC, with new and additional responsibilities and mandates in two sectors, namely 1) Environmental and Climate Change, and 2) Forests. Two regional ministers are appointed to oversee the mandates/activities of these two sectors.

MEFCC also has a mandate to coordinate the implementation of the Climate-Resilient Green Economy (CRGE) strategy and overall environmental and forest management in the country. The Forestry Sector, as one of the two technical wings of the ministry, is responsible for the implementation of the Reducing Emissions from Deforestation and Forest Degradation (REDD+)¹ readiness project in conjunction with its responsibility for strengthening the economic and ecological benefits of the forest sector in the country. MEFCC is also responsible for updating the Ethiopian Forestry Action Plan, which was last drafted in 1994.

The REDD+ Secretariat at MEFCC is the prime unit for the coordination and implementation of the national REDD+ carbon credit certification process, with the main focus since January 2013 being finalizing the Readiness Preparation Proposal (R-PP) and moving to the investment and implementation stage in 2013.

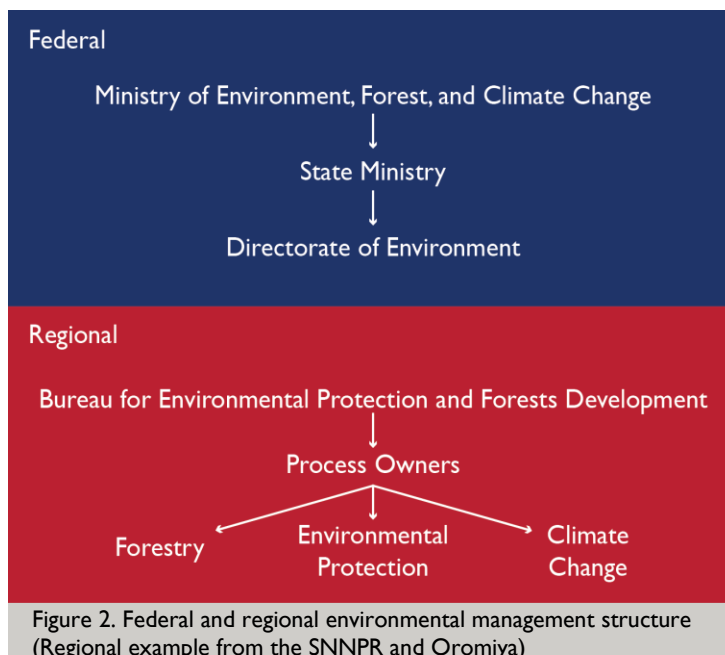


Figure 2. Federal and regional environmental management structure (Regional example from the SNNPR and Oromiya)

¹ REDD+ is fully defined as "Reducing Emissions from Deforestation and forest Degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries" by the UNFCCC at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>

The Federal REDD+ Steering Committee provides oversight for the R-PP implementation and the Federal Technical Working Group and three national Task Forces (Monitoring, Reporting, and Verification; Strategic Environmental and Social Assessment; and REDD+ Strategy) provide technical guidance for REDD+ readiness. Currently, four Regional REDD+ Coordination Units have been opened to support regional capacity building and to coordinate the implementation.

Bekele et al. (2015) details the history of REDD+ in Ethiopia. The REDD+ structure within Ethiopia is under the responsibility of the REDD+ Secretariat, which is accountable to the State Minister for the Forest Sector. The Steering Committee provides direction, oversees activities, and approves the annual work plan and budget. A technical working group is responsible for task forces that develop the national REDD+ strategy, social and environmental assessment, and the reporting and verification schemes. The link to the regional network is yet to be finalized but regional focal persons were identified and trained in 2013.

Ethiopian Biodiversity Institute: The Ethiopian Biodiversity Institute is mandated to undertake the conservation of biodiversity within protected areas and outside of protected areas – as well as the utilization of biodiversity. It is also mandated to maintain and develop international relations, implement international conventions to which Ethiopia is signatory, and undertake necessary preparatory studies before the country signs new or existing international conventions.

Ethiopian Wildlife Conservation Authority (EWCA): Previously a semi-autonomous organization under the Ministry of Agriculture and Rural Development, EWCA is currently operating under the auspices of the Ministry of Culture and Tourism.

EWCA is given the authority to undertake conservation and sustainable utilization of wildlife in Ethiopia. EWCA works closely with national and international stakeholders on wildlife conservation. It actively participates in different seminars, experience-sharing workshops, conferences and other relevant meetings on wildlife conservation, biodiversity, ecology (ecosystem management), environmental management, and other related topics. Its mission is to scientifically conserve and manage Ethiopian wildlife and its habitats in collaboration with communities and stakeholders for the ecological, economical, and social benefit of the present generation, and pass them to the next generation.

EWCA has also been charged by the government and United Nations Development Program with implementing the project “Sustainable Development of the Protected Areas System of Ethiopia.”

Encouraging steps are being taken for environmental governance in Ethiopia. Historically, Ethiopian environmental laws focused on resource utilization by regulating hunting and logging. Over time, the environmental laws have come to also include pollution and radiation control and other regulatory aspects such as environmental impact assessment. However, Ethiopia lacks a comprehensive land use plan for the country as a whole, and land use decisions are creating tensions between regions.

There are now glimpses of hope in some regional laws, as they expressly provide for the issuance of land use plans, at least at the regional level. The Prime Minister’s Advisor on climate change is the national representative for land use planning and chairs a committee with relevant ministry representation. The Oromia Land Law seems to have taken the lead at the regional level and it is expected that it could be a lesson for others too.

2.1.1.2 REGIONAL LEVEL INSTITUTIONS

Each region has its own institutional arrangement for land administration. For example, Amhara established the Bureau of Land Administration and Use; Tigray has a Regional Environmental Protection Land Administration and Use Authority; Oromia has the Bureau of Land and Environmental Protection; and Southern Nations, Nationalities, and Peoples' Region (SNNPR) has a Bureau of Agriculture and Natural Resources Development. Other regions have also established land administration and land use organizations. Afar has institutionalized the Environmental Protection and Rural Land Use Administration, while Benishangul-Gumuz organized as the Environment Protection, Land Administration, and Use Authority.

Oromia, SNNPR, and Benishangul-Gumuz have embraced community-based natural resource management (CBNRM) and incorporated it into their forest laws.

In general, Ethiopian environmental protection has moved from oversight by autonomous organizations to consolidations in agencies, administrations, and authorities. However, restructuring is common and can undermine the authority and institutional capacity of the organizations as well as create confusion—even within government—on the particular roles and responsibilities of each administrative entity. This problem at the federal level is further exacerbated at the regional level.

The Oromia and Amhara regions are the first to have established the Forest Enterprises Supervising Agencies, which oversee the development, protection, and sustainable utilization of plantations in the regions. Again, this kind of structural arrangement is intended to reduce unwise utilization of the forestry sector in the regions, but the challenge is to identify how the federal-regional links in forestry, biodiversity, and environment are functioning and to assess the merits and obstacles of different organizational arrangements used and experienced by different regions.

2.1.2 POLICIES AND LAWS

2.1.2.1 FEDERAL LEVEL

Land administration laws: The Ethiopian Constitution states that all land belongs to the state and peoples of Ethiopia and shall not be subject to sale or to other means of exchange (article 40.2 Proclamation No. 1/1995). With regard to rural land, legislation regarding land administration and land use has been (re)enacted during the last 10 years, both at the federal and at the regional level.

Articles 89(5) and 40(6) of the constitution identify that the state has the right to manage land and its related resources, but with Article 43 (2) local people (communities) have the right to be consulted before any activity that affects their interest takes place (including commercial investment). Proclamation 401/2004 details the payment of compensation for appropriated property (generally related to income generated from that land). There is a lack of clarity in defining what constitutes land holdings, particularly for lands other than those that are agricultural.

Rural land registration and certification in Ethiopia started in 1998 and is a process led by the regions. As a result, each region conducts land registration and certification programs with different approaches and methodologies for land parcel identification, boundary demarcation, land registration, land certification, and dissemination of land information (Behaylu et al., 2015). CIFOR research is forthcoming on the dynamics between land certification and deforestation. Beginning in 2005, through the USAID-supported Ethiopia Strengthening Land Tenure and Administration Program (ELTAP), land policy was reformed to increase land tenure security. The efforts targeted the certification of farm lands giving farmers the right to cultivate and inherit land use rights. The federal Land Administration and Land Use Proclamation No. 456/2005 (which recently replaced 89/1997) provides that farmers have a perpetual use right on their agricultural holdings, and that this right will be strengthened by issuing certificates and keeping registers.

Although the numbers on progress are not always complete, the sheer size of them is very impressive. In Tigray 88 percent of the rural households received a certificate during 1998 and 1999. This amounted to 663,000 certificates. Of the remainder, more than half were tackled in 2004. Amhara aimed at certification of the whole region in three years. At the end of year 2 a completion rate of 79 percent was reported. Mention was also made of 4.5 million holders expected, 3.5 million certificates printed; 2.4 million holders registered, and 1.3 million (first phase) certificates issued. Oromia reports data collected for 2.5 million households out of an expected 4.1 million. Of the about 5,000 kebeles (wards/neighborhoods), 3,000 have been reported as fully collected. Issuing of certificates is, however, lagging much behind due to lack of capacity (both human and financial) at the woredas (districts). SNNPR aimed for complete certification for the whole region in two years, expecting about 1.8 million households. After one year 40 percent of the data was collected, but similar delays with issuing of certificates occurred.

According to Gebremeskel (2013), as of 2010 land certificates had been issued to 7.3 million rural households (less than 10 percent of the rural population). In some of the regions a cadastral map is being prepared. Pilots with cadastral mapping have been undertaken mainly in Amhara, including a project with use of advanced global positioning system (GPS) equipment and GIS-supported mapping functionalities funded by Swedish International Development Cooperation Agency (SIDA). Overall the land registration and certification process is likely to lead to a number of tangible benefits:

- **Reduction of conflict:** Land-related conflicts decrease due to clarification of boundaries and field-based adjudication associated with certification programs.
- **Women's empowerment:** Including women's names on land use certificates (as practiced in all of the regions except in Tigray) helps improve their status and bargaining power vis-à-vis their husbands and the community at large.
- **Increased individual or communal investment:** Increased incentives for investment on individual plots are associated with secure land tenure.
- **Security against expropriation:** Certification may help protect against future land redistribution or land takings by local government or from urban expansion—two issues to which responses varied widely across regions.

Generally, ownership-related conflicts have been reduced but boundary-related conflict continues to be problematic.

The following major targets were set with respect to rural land administration during GTPII: (i) provide land use certificates for 7.2 million male- and female-headed households that secure land use rights by carrying out the second level of certification for 28.6 million farmlands in 359 woredas; (ii) prepare a national rural land use master plan; and (iii) prepare a land administration and utilization master plan for each region. Addressing land rights in pastoralists' and agro-pastoralists' areas has historically posed significant challenges. There is a lack of state-recognized rights for pastoralism, and thus, reallocation of these lands to large-scale agriculture has been observed. The issues and needs in this area are detailed further in the report "Land Administration to Nurture Development: Protection of Pastoralists' Land Rights and Lessons from the International Experience" (USAID, 2013e).

Environmental laws:

The GoE drafted the National Biodiversity Strategy Action Plan, with the newest version covering 2015-2020. The strategy is meant to contribute to the millennium development goal of poverty reduction and to foster grassroots participation by farmers and pastoralists. It describes values of biodiversity and ecosystem services, identifies the direct and indirect causes of biodiversity loss, outlines institutional and legal frameworks that govern conservation, and provides vision, mission, and guiding principles and outlines national targets.

Proclamation 295/2002 (the Environmental Policy) was issued to establish environmental protection agencies at regional levels. Following the establishment of these environmental protection administrations, the environmental impact assessment and environmental pollution control proclamations were issued. Climate change, as of 2016, has also trickled down to regional and zonal duties as well through the Environmental Protection Offices. However, the implementation of most environmental policies and laws has been impaired by lack of institutional capacity (e.g., ability to translate federal laws into local action, education for implementing staff, burdens on time requirements, lack of staffing and equipment). The Impact Assessment Policy, for example, has been impaired by the SNNPR investment policy, which states that land for investment will be given to investors irrespective of whether the investment project requires environmental and social impact assessment (ESIA).

Investment laws: Investment Proclamation 769/2012 and 849/2014 (amendment) states that the investment objectives are not only to promote economic development but also to explicitly "exploit and develop the immense natural resources of the country." Domestic investors under Proclamation 270/2012 amended by

312/2014 can invest in areas with restricted foreign investment, such as banking, packaging and shipping, broadcasting, media, legal services, trade in traditional medicines, translation, and small air transport services. The government under Proclamation 769/2012 has exclusive control of transmission and distribution of electrical energy through the integrated national grid, postal services, and air transport. Under Article 51(1) of the Federal Constitution, the federal government has the task of enacting laws “for the utilization and conservation of land,” whereas Article 52(2)(d) gives regions the power to “administer land and other resources in accordance with Federal laws.” This allows for some decentralization of land allocation powers to the regions with a threshold of 5000 hectares with the Ministry of Agriculture and Natural Resources being responsible for the larger blocks (LANDac, 2016). Regional Investment Commissions can issue the investment licenses for blocks less than 5000 hectares. As of 2010, there were more than 7 million hectares available for lease. Only SNNPR, Oromia, Amhara, and Tigray have issued legislation and issued land hold certificates to smallholder households, meaning that the other regions have citizens at higher risk of land grabs by large international investors in agriculture (Stebek, 2011).

Biodiversity policy: The national Policy on Biodiversity Conservation and Development is based on the rationale that the conservation of biodiversity is a condition for overall socioeconomic development and sustainable environmental management goals. Hence, the conservation, proper management, and the use of biodiversity need to be supported by policy, legislation, and national capacity building.

The efforts for ensuring improved sustainable biodiversity conservation and equitable benefit to the community in GTPII include the following:

- *Ex situ* biodiversity conservation
- *In situ* conservation
- Characterization of biodiversity (i.e., identification of new species or classification of known species)

Forest laws: The 1995 Ethiopian Constitution laid out the foundations to ensure sustainable development, environmental protection, and social safety. With this authority, Ethiopia has ratified international agreements and prepared national legal frameworks pertinent to environment and natural resources protection.

The forest sector in Ethiopia has received considerable attention in the policy and development strategy of the country over the last two decades. In February of 2015, a new forest definition was adopted as land at least 0.5 hectares covered by trees or bamboo, with a height of at least two meters and a canopy cover of 20 percent or trees with the potential to reach this threshold. This is different than the FAO definition of forests (i.e., 10 percent canopy, 0.5 hectares, and five meters) (MEFCC, 2016).

The national forest policy and strategy was formulated in 2007 and has been under revision since 2015. Furthermore, MEFCC has finalized reviewing the Forest Development, Conservation, and Utilization Proclamation, which is expected to be ratified this year, 2016. Though not directly related to the forest sector, policies and strategies formulated in other sectors influence the protection and conservation of forests. The relevant national legal and policy frameworks include the following:

- The 2015 Forest Development, Conservation, and Utilization Proclamation (expected to be ratified in 2016)
- The 1997 Environmental Policy of Ethiopia (a revision of this policy by MEFCC is underway)
- The 299/2002 Environmental Impact Assessment Proclamation
- National Energy Policy, 1994
- Water Resources Management Policy, 1999
- Development, Conservation, and Utilization of Wildlife Proclamation, 2007
- Expropriation of Landholdings for Public Purposes and Payment of Compensation, 2005
- Rural Land Administration and Land Use Proclamation, 2005
- National Social Protection Policy, 2014
- Proclamation on Access to Genetic Resources and Community Knowledge, and Community Rights

Proclamation, 2007

- Gender Mainstreaming Policy and Strategy.
- Guideline for Participatory Forest Management in Ethiopia, 2012

Wildlife Laws: The Development Conservation and Utilization of Wildlife Proclamation repealed two old laws, namely, Wildlife Conservation Regulation No 416/1972 and Forestry and Wildlife Conservation and Development Proclamation No 192/1980. It, however, maintained two other even older laws, the Awash National Parks Establishment Order No 54/1969 and the Simien National Park Establishment Order No 59/1970 (Article 18 in FDRE, 2007). The Proclamation emphasizes the need for the active participation of local communities and private investors in the development, conservation, and utilization of wildlife and the need to enact laws in conformity with the present day federal arrangement, as well as the need to foster the role of wildlife in the economic development of the country.



Figure 3. The mountain nyala around Bale Mountains National Park headquarters has rebounded in numbers thanks to management and enforcement against poaching.

The Proclamation vests the power of wildlife administration in both the federal and regional governments. National parks that are nationally and globally significant and known to have representative ecological zones and embrace great diversity of wildlife; national parks and wildlife sanctuaries that are inhabited by the country's endemic and endangered species; any wildlife conservation areas geographically situated within two or more regions; any trans-boundary wildlife conservation areas that may be established in accordance with agreements with neighboring countries shall be designated and administered by the federal government (Article 4(1)). The wildlife conservation areas to be administered by the federal government are to be designated by the Council of Ministers upon the recommendation of the Ministry of Agriculture and Rural Development (Article 4(2)). Those national parks, sanctuaries, etc., that are not designated and administered by the federal government are to be designated and administered by the regional governments according to regional laws (Article 5).

Irrespective of these positive developments, the Wildlife Development and Conservation Authority Establishment Proclamation No 575/ 2008 (Preamble) is purely economic. That is, it states that Ethiopia will conserve wildlife to get economic benefits from such activity. This is an anthropocentric approach and has great dangers in it. That is, if Ethiopia finds more economic benefit in eliminating wildlife, there is not any ethical reason to stop such activity, as it would be guided by economic principles alone. This kind of approach contradicts the Environmental Policy of Ethiopia, Section 2(3)(q), which states: "Species and their variants have the right to continue existing..." This should be one of the purposes of conserving wildlife.

Another concern is that some laws seem to consider land an infinite resource. Investment laws are known to provide for preparing land for investment without regard for current land uses or current land tenure—particularly for commercial agricultural investment. Unless such rules make the availability of the required land conditional on some factors, they may be interpreted to mean that every piece of land should be allocated for agriculture. The situation can only be aggravated by the absence of a comprehensive land use plan.

2.1.2.2 REGIONAL-LEVEL LAWS

Ethiopia is a federal country with regions that have a constitutionally guaranteed right to enact laws in their jurisdictions. The GoE is empowered to enact laws for the utilization and conservation of land and other natural resources, historical sites, and objects (FDRE, 1996, Article 51(5)). However, it may, when necessary, delegate to the regions powers and functions granted to it by Article 51 of the Constitution (Article 50(9)). It is assumed that the regional governments are now exercising the right to enact environmental laws. Regions can better take care of the environment than the federal government, if they build their capacity, as they are nearer to the people, land, forests, and water.

With the creation of the MEFCC in 2013, there is again a federal institution responsible for forests. Natural resource management had been the responsibility of regional agricultural and rural development bureaus, which also are responsible for the preparation of plans and budgets for the forestry administration in their respective regions. More recently, the regional forest organizations have been re-organizing with renewed engagement in PFM both because of active participation in REDD+ preparation and as one of the pillars of the CRGE. Woredas may also make their own development plans, which are sent to the region for approval and funds, but quotas and mandated development plans make woreda involvement difficult (Bekele et al., 2015). The regions were also given the power to formulate their respective policies and raise their own revenue, as well as plan and execute their own forest development activities in accordance with the policies of the federal government. The following are some of the notable regional laws in relation to land administration and forest conservation:

- Proclamation to Amend Proclamations No 56/2002, 70/2003, and 103/2005 of Oromia Rural Land Administration and Use Proclamation No 130/2007
- SNNPR's Land Administration and Use Proclamation No 110/2007 and SNNPR Rural Land Administration and Use Regulation No 97/2006
- The Revised Rural Land Administration and Use Determination: Proclamation No 133/2006 of Amhara Region
- TNRS 136/2007, AfNRS 49/2009, BGRS 85/2010, GRS 185/2011, and SRS 128/2013 Land Administration and Use Proclamations
- Forest Proclamation of Oromia, Proclamation No 72/2003, SNNPR Forest Management, Development, and Utilization Proclamation No 147/2012.
- Regional Proclamation 97/2006 Tigray and Land Use Regulation 37/2007
- Rural Investment Land Use Regulation 29/2009 in Benishangul-Gumuz Region

Regions of Afar, Harari, and Somali lack legislation to administer land for rural or clan-uses.

Without clearly established national environmental priorities at the regional and local level, administration staff may lack adequate information and incentives to prevent environmental degradation and protect critical ecosystem services (Teklemariam et al. 2016). Relevant legal and regulatory environmental policy frameworks are summarized in Table 1 below.

TABLE I. LEGAL AND REGULATORY ENVIRONMENTAL POLICY FRAMEWORK

POLICY NAME	YEAR	SUMMARY
1994 Constitution of Ethiopia	1994	Right to clean and healthy environment; duty of government and citizens to protect the environment; right of people to be consulted in planning and implementation of environmental policies that directly affect them; right to compensation for displaced persons; programs shall not damage or destroy the environment
Environmental Policy of Ethiopia	1997 (revised 2016)	Established environmentally sustainable development principles

POLICY NAME	YEAR	SUMMARY
Constitutions of Regions	Various	Regional governments administer land and natural resources; concerned communities shall be consulted in formulation and implementation of environmental policies
Biodiversity Conservation and Research Policy	1998	Provides guidance on conservation, development, and utilization of biodiversity; public participation in conservation, development, utilization, and benefits; projects engaged in biological resource utilization shall follow Environmental and Social Impact Assessment (ESIA) procedures
Water Resources Management Policy	1999	Promotes “efficient, equitable, and optimum utilization” of water resources for development; ensures equitable access; protects water resources; promotes cooperative river management
Ethiopian Water Resources Management Proclamation (No. 197)	2000	Follows up and supervises the conservation, management, and prevention of pollution of water sources; proclaims water resources the property of the government and sets provisions for use and management of water resources, establishes the Ministry of Water Irrigation and Energy’s duties to delimit boundaries of water bodies, prohibit clearing or construction within delimitations, and provide supervision or technical advice to avoid adverse impacts.
Environmental Impact Assessment Guideline	2000	Provides policy and legislative framework for the general ESIA process and standards for key environmental sectors.
Environmental Protection Organs Establishment Proclamation (No. 295)	2002	Re-established Environmental Protection Authority; established Sectoral Environmental Units and Regional Environmental Protection Agencies
Environmental Impact Assessment Proclamation (No. 299)	2002	ESIA a mandatory procedure for government, public, or private entities for projects likely to have negative impacts
Environmental Pollution Control Proclamation (No. 300)	2002	Control and manage possible causes of environmental pollution that pose environmental, social, and health threats. The proclamation states: <ul style="list-style-type: none"> • No person shall pollute or cause any other person to pollute the environment by violating the relevant environmental standards, • The Authority or the relevant Regional environmental agency may take an administrative or legal measure against a person who, in violation of law, releases any pollutant to the environment
Environmental and Social Management Plan Preparation Guideline	2004	Provides essential components to be covered in environmental management plans, and provides structure for mitigation measures, monitoring, and institutional arrangements.
Rural Land Administration and Use Proclamation (No. 456)	2005	Conserve and develop rural natural resources through sustainable land use processes
Proclamation on Expropriation of Landholdings for Public Purposes and Payment of Compensation (Proclamation 455)	2005	Establishes legal framework and principles for expropriation and compensation
Regulation for Payment of Compensation for Property Situated on Landholdings	2007	Describes implementation procedures for settling public domain entitlement, property, land asset classification and valuation laws, and procedures for expropriation and for grievance redress.

POLICY NAME	YEAR	SUMMARY
Expropriated for Public Purposes (Reg No. 135)		
Solid Waste Management Plan (No. 513)	2007	Promotes community participation in solid waste management
Directive Issued to Determine Projects to Environmental Impact Assessment (No. 1)	2008	Identifies and lists those investment projects subject to a mandatory ESIA.
Pesticide Registration and Control Proclamation (Proclamation No. 647)	2010	Provides registration and control of pesticides responsibility to the Ministry of Agriculture; requires registration on basis of effectiveness, safety for humans, and non-target organisms and the environment; prohibits importation of highly hazardous pesticides; obliges all pesticides to display labels that meet ministry requirements.
Population Policy		Ensure a spatially balanced population distribution pattern with a view of maintaining environmental security, improving productivity of agriculture, and introducing off-farm non-agricultural activities. Implement information and education programs addressing small family size and its relationship with human welfare and environmental security
Ethiopia's Agricultural Sector PIF 2010- 2020	2010	This is a strategy paper prepared by the Ministry of Agriculture. The strategy indicates that there has been a tendency toward increasing agricultural productivity. It further states that this productivity has to be maintained through sustainable land management (SLM). The report also relates SLM to mitigation of the impacts of climate change.
Ethiopia REDD+ Readiness Preparation Proposal	2012	Finalizes the agreement with the GoE for the components of proposed REDD+ activities, financing options, procurement plans, and establishment of institutional and implementation arrangements, as well as pilot projects
Ethiopia Programme of Adaptation on Climate Change	2011	Updates the 2007 National Adaptation Programme of Action. Consultative plan across regions that builds a climate-resilient economy, identifies climate risks, targets adaptation to climate change, and recommends mainstreaming into regional and sectoral adaptation plans.
Region and City Administration Adaptation Plans	multiple	Region and city-level adaptation planning that must be updated and harmonized with the national adaptation program.
Sectoral Adaptation Plans	multiple	Sectoral level adaptation plans for agriculture and forestry and water and energy that roll into the larger national adaptation program. The Forest Sector Development Plan revealed in Sept 2016 targets 20-30 percent forest coverage over the next 10 years.
Productive Safety Net Program (v4)	2015	National strategy for addressing food insecure populations that also involves transformation of rural communities by public works with natural resource management and climate resilience components.
Ethiopian Strategy Investment Framework for SLM	2008	The Ethiopian Strategy Investment Framework (ESIF) was prepared for the SLM Secretariat of the Ministry of Agriculture in 2008. The goal of the framework is to "Provide a national-level strategic planning framework that is used to guide the prioritization, planning and implementation, by both the public and private sector, of current and future investments in SLM with the aim of addressing

POLICY NAME	YEAR	SUMMARY
		the interlinked problems of poverty, vulnerability, land degradation, and declining productivity of agricultural lands at the rural community level.” Moreover, one of the objectives of the framework is an environmental objective: “Rebuild Ethiopia’s natural capital assets by overcoming the causes, and mitigating the negative impacts, of land degradation on the structure and functional integrity of the country’s ecosystem resources.”
The Food Security Strategy of Ethiopia	1997	This strategy touches on many different policy areas including land tenure and land use, rural credit, and marketing systems. With regard to land management, the government will increase security of tenure through certification, and with community participatory land use planning, better manage the natural resources. The strategy dwells on the importance of secured land tenure and land management for the purpose of food security.

Source: (World Bank, 2015)

2.1.3 INTERNATIONAL CONVENTIONS

Ethiopia is a signatory to the Convention on Biological Diversity and the United Nations Convention to Combat Desertification. The summary of the legal, policy, and institutional frameworks including international conventions relevant to forest and biodiversity conservation are summarized below:

- Ethiopia participated in the Earth Summit held in Rio de Janeiro in 1992 and ratified the UNFCCC convention in 1994.
- Ethiopia signed in 1997 and became a party to the United Nations Convention to Combat Desertification (UNCCD).
- Ethiopia signed the United Nations Convention on Biological Diversity (CBD) in 1993.
- The Convention on International Trade in Endangered Species (CITES).
- Ethiopia ratified the Convention for the Protection of the World Cultural and Natural Heritage convention in 1977.
- Pan-African Agency for the Great Green Wall Project, Ethiopia became a member in 2014.

2.1.4 REGIONAL COOPERATION

The recently established Horn Regional Environmental Network, financed by the government of the Netherlands, is working in environmental conservation. Member nongovernmental organizations (NGOs) and Addis Ababa University work together on demand-driven, environment-related research and policy advocacy, with a major focus on the cross-border Boma Park in Gambela. The types of projects and the activities carried out in Ethiopia vary from donor to donor. Donors active in environmental conservation are the European Union; the governments of Norway, the Netherlands, and Finland; Swedish Development Assistance; Canadian Development Assistance; the Japanese International Cooperation Agency; the German Agency for Technical Development; and the United Nations Development Program—Global Environment Facility (UNDP-GEF).

2.1.5 KEY NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

While Ethiopia has a very diverse set of donors, the work primarily focuses on relief and development. Few organizations are addressing forestry and biodiversity aspects. A full list of actors is included as Annex B.

Some pioneer NGOs that are working in the natural resources sector are the Ethio-Wetland and Natural Resources Association, FARM Africa, SOS Sahel, the Ethiopian Forest Coffee Forum, the Forum for Environment, MELCA-Ethiopia, the Frankfurt Zoological Society, the Ethiopian Wolf Conservation Programme (BornFree Foundation), ENDA Ethiopia, CARE Ethiopia, World Vision Ethiopia, and GIZ.

The Ethiopian NGO sector is still relatively nascent (Clark, 2000). The political environment is not conducive and is sometimes hostile to local NGO operation (Ravelo, 2013), particularly if those NGOs focus on issues sensitive to the central government such as land governance and user rights. NGOs can however, bolster GoE efforts for a CRGE as well by improving the capacity of regional and local institutions for oversight of natural resources and land certification. Additionally, by working with local communities, household incomes can be diversified into processing and new sustainably produced goods while building the skills of the future industrial/manufacturing workers and entrepreneurs.

2.1.6 KEY ENVIRONMENTAL ACTIVITIES AND PROJECTS IN ETHIOPIA

Ethiopia’s development agenda is governed by two key strategies: the Second Growth and Transformation Plan (GTPII) and the Climate-Resilient Green Economy (CRGE) strategy. Both strategies prioritize attainment of middle-income status by 2025 and, through the CRGE strategy, to achieve this by taking low-carbon, resilient, green growth actions. Both strategies emphasize agriculture and forestry. The CRGE strategy targets 7 million hectares (i.e., 4 million for conservation and 3 million for afforestation/reforestation). GTPII Goal 15 aims to protect, restore, and promote sustainable use of terrestrial ecosystems by managing forests, combating desertification, halting and reversing land degradation, and halting biodiversity loss.

GTPII enables the community to actively participate in environmental protection and forest development activities. It encourages implementation of the green economy strategy at all administration levels. As part of GTPII, Ethiopia plans to increase the share of the forest sector in the overall economy and increase forest coverage through research-based forest development. GTPII CIFOR, however, has conducted studies around PFM efforts and narrated the challenges for successful outcomes for these projects (Bekele et al., 2015). Both capacity and enabling conditions were bottlenecks for PFM’s integration into the CRGE.

TABLE 2. NATIONAL STRATEGIES AND PLANS

	OVERVIEW	GOALS, OBJECTIVES, OR PILLARS	TIMEFRAME
Growth and Transformation Plan II	As a vehicle towards the realization of Ethiopia’s vision of becoming a lower middle income country by 2025, the Second Growth and Transformation Plan (GTPII) is built on sectoral policies, strategies and programs; lessons drawn from the implementation of the first GTP; and the post-2015 sustainable development goals (SDGs). It has also taken into account global and regional economic situations with direct or indirect bearing on the Ethiopian economy.	<p>Economic Growth and Development: Sustaining the rapid, broad-based and equitable economic growth and development witnessed during the last decade including GTP I</p> <p>Productive Capacity and Efficiency: Increase productive capacity and efficiency to reach the economy’s productive possibility frontier through rapidly improving quality, productivity, and competitiveness of productive sectors (agriculture and manufacturing industries)</p> <p>Domestic Private Sector: Enhance the transformation of the domestic private sector to enable them to become a capable development force</p> <p>Industry and Infrastructure: Build the capacity of the domestic construction industry, bridge critical infrastructure gaps with particular focus on ensuring quality</p>	2015/2016 – 2019/2020

TABLE 2. NATIONAL STRATEGIES AND PLANS

	OVERVIEW	GOALS, OBJECTIVES, OR PILLARS	TIMEFRAME
		<p>provision of infrastructure services</p> <p>Urbanization: Proactively manage the on-going rapid urbanization to unlock its potential for sustained rapid growth and structural transformation of the economy</p> <p>Human Development and Technology: Accelerate human development and technological capacity building and ensure its sustainability</p> <p>Governance: Continue to build democratic and developmental good governance through enhancing implementation capacity of public institutions and actively engaging the citizens</p> <p>Women and Youth Empowerment: Promote women and youth empowerment, ensure their effective participation in the development and democratization process and enable them to equitably benefit from the outcomes of development</p> <p>Climate-Resilient Green Economy: Build climate-resilient green economy</p>	
<p>Climate-Resilient Green Economy Strategy</p>	<p>Framework for achieving middle-income status by 2025; focuses on four key pillars: agriculture, deforestation, power, and transportation. Ethiopia's CRGE is supported by UKaid, the Global Green Growth Institute (GGGI), UNDP Ethiopia, and Japan. It was rolled out in 2011 by the Prime Minister of Ethiopia at the Durban negotiations (COP 18).</p>	<p>Agriculture: Improving crop and livestock production practices for higher food security and farmer income while reducing emissions</p> <p>Forestry: Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks</p> <p>Electric Power: Expanding electricity generation from renewable energy for domestic and regional markets</p> <p>Transport, industrial sectors and buildings: Leapfrogging to modern and energy-efficient technologies</p>	<p>2011 – 2025</p>
<p>National Biodiversity Strategy and Action Plan</p>	<p>The mission statement declares that, "By 2020, awareness of the general public and policy makers on biodiversity and ecosystems services is raised; biodiversity and ecosystem services are valued; pressures on biodiversity and ecosystems are reduced; the status of biodiversity and ecosystem services is improved; and access to genetic resources and fair and equitable sharing of benefits arising from their use is ensured."</p>	<p>Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</p> <p>Strategic Goal B: Reduce the direct pressure on biodiversity and promote its sustainable use</p> <p>Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species, and genetic diversity</p> <p>Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services</p>	<p>2015-2020</p>

TABLE 2. NATIONAL STRATEGIES AND PLANS

OVERVIEW	GOALS, OBJECTIVES, OR PILLARS	TIMEFRAME
	Strategic Goal E: Enhance implementation through participatory planning, knowledge management, and capacity building	

2.1.7 KEY ENVIRONMENTAL ACTIVITIES SUPPORTED BY BILATERAL DONORS, MULTILATERAL DONORS, AND INTERNATIONAL ORGANIZATIONS

A number of developmental projects and programs are being implemented by the Ethiopian government singly or in collaboration with donor (bilateral and multilateral) communities and NGOs. Most of these works are focused on soil and water conservation, soil management for improved agricultural productivity, and reforestation and afforestation practices. They mitigate soil erosion through the construction of physical structures such as terraces, check dams, cut-off drains and micro-basins, and to a limited extent afforestation and revegetation of degraded and fragile hillside areas.

World Food Program (WFP): One of the earliest and long-running development programs in Ethiopia is called Managing Environmental Resources To Enable Transitions (MERET). MERET and has been running for about three decades through the joint efforts of the WFP and the GoE. Over time the MERET program has evolved into what is called MERET PLUS (MERET through Partnerships and Land Users Solidarity). Earlier MERET programs focused on soil and water conservation; however, the main objective has become not reducing soil loss but rather enhancement of rural livelihoods through development-oriented sustainable land management. Consequently, since 2007 MERET PLUS has also targeted soil fertility management, agroforestry and forestry development and rehabilitation, income-generating activities, homestead gardens and crop diversification, rain water harvesting in the form of small household ponds, shallow wells, spring regeneration, and several other development-oriented activities and strategies.

Productive Safety Net Program (PSNP): Another important national program is the PSNP. The objectives of PSNP are to provide transfers to people in chronically food-insecure woredas. It provides support or grants for the creation of productive and sustainable household and community assets and incomes, and it



Figure 4. PSNP beneficiaries in Amhara Region watch over a spring that has been replenished after watershed rehabilitation.

contributes to large-scale rehabilitation of severely degraded areas. The project provides grants to households whose adults participate in labor-intensive public works (mostly watershed and communal land management) and to households that are labor-poor and cannot undertake public works. PSNP already shows significant reductions in soil erosion and sedimentation, increased vegetation cover, increased forage for livestock, enhanced yields and base flows of springs, and increased access to safe water—all with a high benefit-cost ratio. This program is supported by various multilateral and bilateral donors (e.g., Canadian International Development Agency (CIDA), World Bank).

Urban Resilience Program: The GoE is developing a 10-year UPSNP as an element of the Urban Food Security and Job Creation Strategy to support over 4.7 million urban poor living in 972 cities and towns. The project will support the GoE in improving the incomes of targeted poor households and establishing urban safety net mechanisms. This will be achieved through provision of cash transfers, financial and technical support to access livelihood opportunities, building the capacity of institutions to effectively deliver this support, and developing core systems for delivery of safety nets and complementary livelihood services.

The project will be implemented over a long-term period through a gradual roll-out plan of different phases starting with big cities having a population of over 100,000 people. The Bank support will provide assistance for the first five-year phase of the government program and is targeting 11 major cities—Addis Ababa and one city from each region (Adama, Assayita, Asosa, Dessie, Dire Dawa, Gambela, Hawassa, Harari, Jijiga, and Mekele). In the first phase, 604,000 beneficiaries (the poorest 12 percent and about 55 percent of people living below the poverty line in these 11 cities) will be targeted through a gradual roll-out plan during a five-year period. Given the large size of Addis Ababa and the relatively high poverty rates it records, about three-quarters of the beneficiaries will be from Addis Ababa. The project will use a combination of targeting mechanisms to identify beneficiaries.

U.S. Agency for International Development (USAID): is supporting the Ethiopian government in strengthening its efforts to improve land administration:

Ethiopia Strengthening Land Tenure and Administration Program (ELTAP) was implemented by the Ministry of Agriculture and four regional land administration and land use agencies from 2005 to 2008. It focused on the implementation of a land certification system in the four regions of Amhara, Oromia, SNNP, and Tigray.

Ethiopia Strengthening Land Administration Program (ELAP) has been operational in four major regions and Afar and Somali regions. A public information and awareness campaign was one of the notable successes of the two USAID-supported programs.

Land Administration to Nurture Development (LAND) Program for Ethiopia launched in June 2013. LAND builds on previous USAID land administration and property rights projects and is operating in six regions of Ethiopia, on the federal level, and in collaboration with Ethiopian universities. The program will bolster land administration capacity in the country and will expand land certification for smallholder farmers in AGP woredas. The new program is also working with pastoral communities on access to grazing land and water and to build resilience in drought-prone areas.

World Bank, Finland (Finland-SLM) Rural Land Administration), European Union (EU), and Department of Foreign Affairs, Trade, and Development of the Canadian Government are supporting the Sustainable Land Management Program (SLMP) of Ethiopia. The program is part of the long-term Ethiopian Strategic Investment Framework for Sustainable Land Management adopted by the GoE in September 2008.

The goal of the SLMP is to reduce land degradation and increase agricultural productivity of small-scale farmers in the rural highland areas of Tigray, Amhara and Oromia, SNNP, Benishangul-Gumuz, and Gambela. This objective is shared among all national and development partners contributing to sustainable land management in Ethiopia.

Canadian International Development Agency (CIDA) supported the Water Harvesting and Institutional Strengthening in Tigray (WHIST) Project from 2001-2010; WHIST was more focused on improving capacity for small-scale irrigation, but was affected severely by the Tigray government's policy shift from small-scale irrigation to household rain water ponds.

Government of Finland, Responsible and Innovative Land Administration in Ethiopia (REILA): Finland allocated funds for such cooperation under a program called Responsible and Innovative Land Administration for Ethiopia. REILA focuses particularly on two areas of Ethiopia, Benishangul-Gumuz and Tana-Beles growth corridor in Amhara region. Finland will:

- Support public information and participation in Ethiopian land administration, with a focus on Benishangul-Gumuz and Amhara;
- Support capacity building at the federal level through the Directorate for Rural Land Administration and Use in the Ministry of Agriculture and Rural Development;
- Support basic capacity building for land administration in the Benishangul-Gumuz region;
- Support improved process and capacity for responsible land allocation for investments in the Tana-Beles growth corridor; and
- Support university-level education in Ethiopia in the field of land administration.

Department for International Development (DFID) Land Investment for Transformation (LIFT): is a United Kingdom (UK)-financed project supporting the GoE in the provision of map-based land certificates to farmers in four regions and assistance with the development of the rural land market and its supporting operations. DFID 2011-2016 is also building Ethiopia's institutional capacity to respond to climate change, through support to civil society and the private sector. The Strategic Climate Institutions Programme is supporting Ethiopia's climate negotiators, helping the country attract climate finance and develop a coherent strategic response to climate change. It will also establish a Climate Innovation Centre to support low-carbon technology enterprises.

Japan International Cooperation Agency (JICA): Project for Community Tourism Development through Public-Private Partnership in Simien Mountains National Park and Surrounding Areas (SIMCOT). JICA together with its key partners—the Ethiopian Wildlife Conservation Authority and the Amhara Bureau of Culture, Tourism, and Parks Development—designed and implemented the Project on Community Tourism Development through Public-Private Partnership in SIMCOT. The overall goal of the SIMCOT Project is to provide alternative livelihoods (e.g., through sustainable community tourism) and reduce the local community's dependency on extractive agriculture in the park. JICA provided technical assistance for community tourism by crafting destination management and development planning, capacity building for local communities and tourism-related organizations, product development (tourism products), marketing, and network building. The project is highly effective due to its public-private partnership framework. The SIMCOT Project started in 2011 and was phased out in 2014.

Project for Sustainable Natural Resource Management through Farmer Field Schools in the Rift Valley Area of Oromia Region (NRM-FFS) is also one of the projects being supported by JICA. The Project for Sustainable Natural Resource Management through Farmers Field Schools in the Rift Valley Area of Oromia Region started in 2012 under the Oromia Bureau of Agriculture and Rural Development. The project is currently in the implementation stage and is setting up Farmers Field Schools (FFSs) and organizing local farmers into self-learning groups in two woredas (Liben Chikuala and Bora). Through interactive teaching, the FFSs teach farmers to sustainably manage natural resources through agroforestry and soil conservation measures. JICA trains the facilitators of FFSs to support the group and their exchange of ideas, comparative technologies, and agricultural methodologies, allowing farmers to buy in to environmental protection. Farmers who participate in the FFS learn crop diversification techniques and production efficiency.

Rural Resilience Enhancement Project (RREP) 2012 -2015 is the other JICA-supported project whose objective is to enhance resilience of those people living in drought-prone areas such as the southern parts of Oromia and Somali regions. The Ministry of Agriculture, NRM Directorate in Oromia, and the Somali Livestock Crop Rural Development Bureau are the implementing agencies.

International Network for Bamboo and Rattan (INBAR) is supporting Phase II of Ethiopia’s SLMP through the development and use of bamboo to mitigate land degradation, enhance sustainable watershed management, and improve opportunities for income generation in Ethiopia. This program has been in place since 2014.

Global Green Growth Initiative (GGGI): GGGI is partnering with the GoE to develop and implement the CRGE by delivering guidance on CRGE integration into the national development plan, developing climate-resilient strategies and providing sector level support.

The objective of the GGGI is to support the development of an effective, government-owned system including a strategic program of bankable investments, continued capitalization of a financial mechanism, the CRGE Facility, to fund those investments, and a monitoring and evaluation framework. The key achievement of the GGGI is the framework and sector guidance for integrating CRGE into GTPII plans.

3. BACKGROUND AND DEVELOPMENT CONTEXT

3.1 SOCIETY

Ethiopia is a large and diverse landlocked country, located in the Horn of Africa between 3° and 15°N latitude and 33° and 48°E longitude. Covering a land surface area (including water bodies) of 1,127,127 km², Ethiopia is currently divided into nine regions and two city administrations (Schlüter, 2006). See Figure 5 for a political map of Ethiopia. The Oromo, Amhara, Somali, and Tigreans make up more than three-quarters of the population, but there are more than 80 different ethnic groups within Ethiopia. The groups meeting the criteria for indigenous status include pastoralists and hunter/gatherer communities such as the forest dwelling Majang, who live in the Gambela region. Pastoralism in Ethiopia supports close to 15 million (around 15 percent) of the country’s total estimated population; they own 40 percent of the livestock population (International Work Group for Indigenous Affairs, 2016). The political and economic situation of indigenous peoples in Ethiopia is a tenuous one, however, as their communities are increasingly marginalized, displaced, and deprived of traditional livelihoods and access to the natural environment.

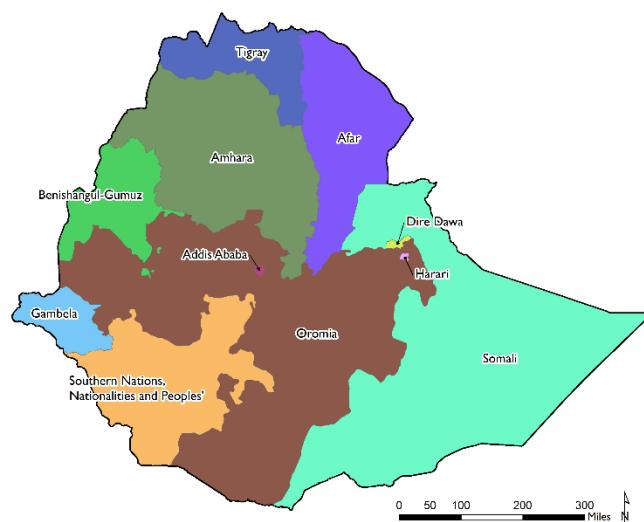


Figure 5. Political map of Ethiopia

The country has a federal, democratic system established in the early 1990s by the Ethiopian People’s Revolutionary Democratic Front (EPRDF), which took over the country in 1991 after removing the Derg regime militarily. EPRDF comprises four regionally based parties from the four major regions (Amhara; Oromia; Southern Nations, Nationalities, and Peoples (SNNPR); and Tigray). The long-serving Prime Minister, Meles Zenawi, died in August 2012, and an important milestone was reached, with the first peaceful and constitutional transition of power in the country’s modern history and subsequent tranquil general

elections in May 2015. Beginning in late 2015 however, unrest and violence had spread through the Oromia region which is home to most of Ethiopia's estimated 35 million Oromo, the country's largest ethnic group. Despite there being an ethnic basis to the unrest, there are longstanding issues including frustrations over land ownership, corruption, political, and economic marginalization. Decentralization of governance to the regional and woreda (district) levels has been actively pursued and is one of the fundamental features of Ethiopia's transition from military regime to civilian rule.

3.2 POPULATION TRENDS

Ethiopia is one of the most populous countries in the world with a total population of 99.4 million (2015) and a growth rate of 2.5 percent (The World Bank Group, 2016). See Figure 6 for a population density map. The country is also rapidly urbanizing at about 4.1 percent a year and the UN estimated Ethiopia's urban population would continue expanding from 13 percent in 1990 to 19.0 percent in 2014, reaching 38 percent in 2050 (United Nations, 2014). As an indication of rapid urban growth, the capital city, Addis Ababa, is expected to double its population of 3.4 million by 2030 (The World Bank Group, 2015). At the current annual growth rate, Ethiopia's population is estimated to reach in excess of 135 million by 2030 and is projected to be among the world's top ten by 2050 (United Nations, 2015).

Ethiopia is a country characterized by enormous internal human displacements taking place primarily as a result of two driving forces: natural and manmade disasters, and development actions. Environmental-induced displacement in Ethiopia has usually been attributed to natural disasters from erratic rainfall, flooding, and drought resulting in massive spontaneous organized and unorganized population movements. This has long been the case for Ethiopians dependent on agriculture who have drifted from moisture-stressed and overpopulated northern and southeastern parts of the country to more fertile, wetter and scarcely populated lowland areas.

Ethiopia's conflict history has also been a major driver of displacement in the past, including the period of military action leading to the fall of the Derg regime and the Ethio-Eritrean war of 1998. Development-induced displacements, on the other hand, have increased in frequency as economic progress has been used to justify forcible resettlement (chiefly for hydroelectric power stations, roads, manufacturing industries, and removal of urban slums). An example of this includes The Grand Ethiopian Renaissance Dam (GERD), which when completed in 2017 is expected to be Africa's largest hydroelectric power plant as well as the cause of displacement for between 20,000 and 140,000 people (Ahmed & Elsanabary, 2015).

Ethiopia is also the largest refugee-hosting country in Africa and in early 2016 was estimated to have 734,931 refugees displaced by droughts, conflicts, political events, and civil wars in neighboring countries including Somalia, Eritrea, South Sudan, and Sudan. Nearly 50 percent of these refugees are women and girls and there are more than 38,000 unaccompanied minors and separated children. The country of origin for the largest number of refugees is South Sudan and Somalia, where conflict has persisted, with more than 284,000 and 250,000 people respectively (United Nations Refugee Agency, 2016). Most refugees in Ethiopia are living in protracted displacement within camps situated near the borders of their respective countries of origin, the largest of which is located near Gambella along the South Sudanese border.

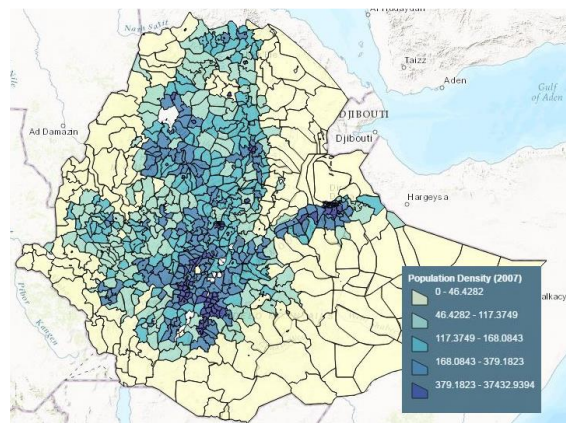


Figure 6. Population Density as of 2007 (Map Sourced from GAFSP, N.D.)

3.3 ECONOMY

Ethiopia remains one of the world's poorest countries with a per capita income of US\$590 (Atlas gross national income, 2014), which is substantially lower than the regional average of US\$1,630 (The World Bank Group, 2016). Ethiopia is also ranked 174 out of 187 countries on the Human Development Index (2014) of the United Nations Development Program. At the same time, the economy has experienced strong and broad-based growth over the past decade and made substantial progress on social and human development objectives. According to the International Monetary Fund (IMF), Ethiopia is now one of the top five fastest-growing economies in the world, averaging an annual growth rate in GDP of 10.9 percent between 2004 and 2014. This level of economic growth has helped reduce extreme poverty in both urban and rural areas by 9.1 percent from 38.7 percent in 2004-05 to 29.6 percent in 2010-11 (The World Bank Group, 2016). However, because of high population growth, the absolute number of poor has remained unchanged over the past 15 years. Ethiopia has achieved the Millennium Development Goals (MDGs) for child mortality and water and there has also been encouraging progress in gender parity in primary education, HIV/AIDS, and malaria.

Expansion of the services (43 percent) and agricultural (41.4 percent) sectors account for most of Ethiopia's economic growth, while manufacturing sector performance remains relatively modest (15.6 percent). The services sector employs 10 percent of the labor force, with Ethiopian Airlines leading the country's export income. As of 2013, there were 57 airports operating in Ethiopia, with plans in place to expand current major airports, as well construct new airports. The agriculture sector employs 85 percent of the workforce and the primary products include cereals, coffee, oilseed, cotton, sugarcane, vegetables, khat, cut flowers, hides, cattle, sheep, goats, and fish. Smallholders form the backbone of the sector, and agricultural production is characterized by fragmented and dispersed land holdings (average plot size is 0.5 hectares), limited irrigation potential, a reliance on rain-fed farming, and relatively low yields.

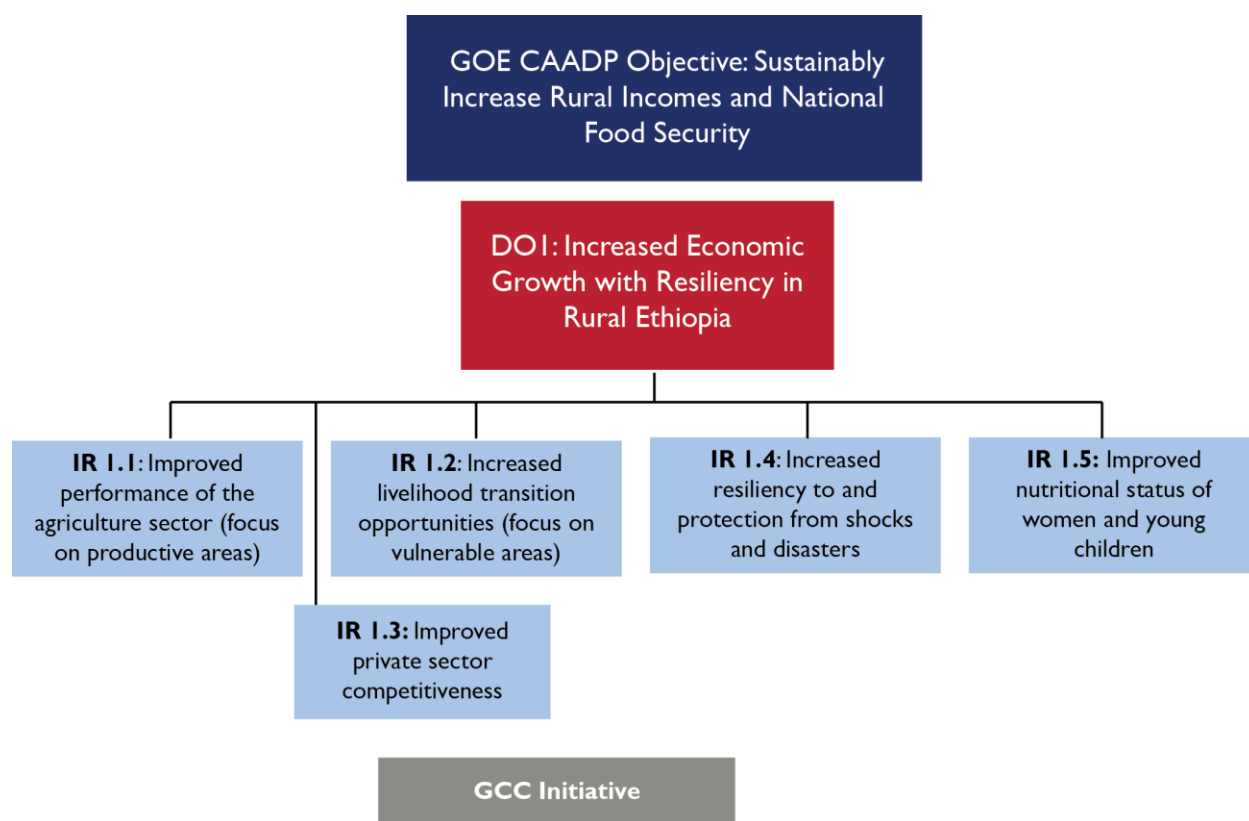
The GoE has recently completed implementation of GTP 2010/11–2014/15, which sets a long-term goal of becoming a middle-income country by 2023, with growth rates of at least 11.2 percent per annum during the plan period. To achieve these ambitious goals and objectives, the GoE has followed a “developmental state” model with a strong role for the government in many aspects of the economy. The sectors prioritized for further development include industry and agriculture, as they represent the drivers of sustained economic growth and job creation for the country.

4. USAID PROGRAMMING

4.1 OBJECTIVES

This section will summarize the USAID/Ethiopia Development Objectives (DOs) and Intermediate Results (IRs). IRs are smaller objectives which, when addressed and combined, can achieve a DO.

FIGURE 7. DO1: INCREASED ECONOMIC GROWTH

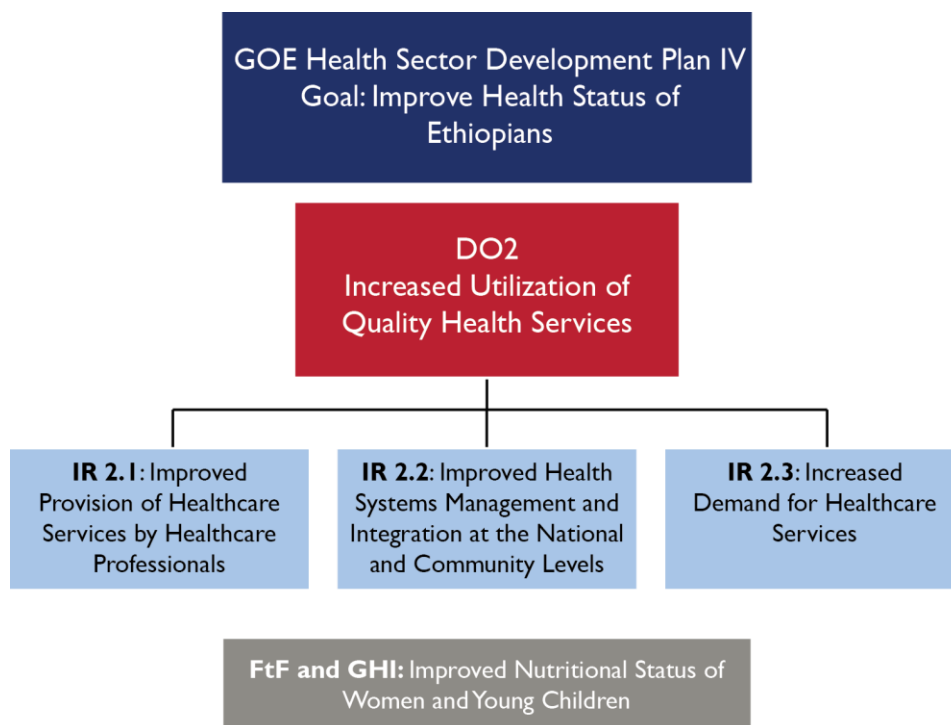


To help the GoE attain its ambitious growth goals while ensuring long-term sustainability, DO1 focuses on rural and agricultural growth. The Ethiopia Climate Change Adaptation Strategy is also linked closely with DO1 activities. The intermediate results are:

1. IR 1.1 Improved performance of the agriculture sector, by targeting value chains through the post-harvest to consumer through Value Chain Expansion (VCE) and Livestock Growth Project (LGP).
2. IR 1.2 Increase livelihood transition opportunities, through Graduation with Resilience to Achieve Sustainable Development (GRAD) work with Productive Safety Net Program (PSNP) to target beneficiaries in chronically food-insecure woredas in the highlands. Integrate food-insecure farmers into food chains and encourage their use of technologies for increased productivity. This effort will focus on areas contiguous with the VCE area of influence. Other programs addressing this Intermediate Result (IR) include: LGP, Pastoralists Livelihoods Initiative (PLI) (closed), and Pastoralists Resiliency Improvement through Market Expansion project (PRIME), all targeting pastoralists.
3. IR 1.3 Improve private sector competitiveness through increased transparency, productivity, and marketing capacity. Activities include facilitating finance, trade, and customs reform, as well as improving business capacity.

4. IR 1.4 Increase resiliency to and protection from shocks and disasters by supporting PNSP and other GoE programs through the establishment of safety nets.
5. IR 1.5 Improve nutritional status of women and young children through a coalition with the Ethiopian Health Office and the Economic Growth and Transformation Office). Feed the Future and Global Health Initiative (GHI) resources will address institutional capacity strengthening for programs and policy, quality and delivery of nutrition and healthcare services, prevention of undernutrition through community-based care and practices, and adoption of a new learning agenda.

FIGURE 8. DO2: INCREASED UTILIZATION OF QUALITY HEALTH SERVICES

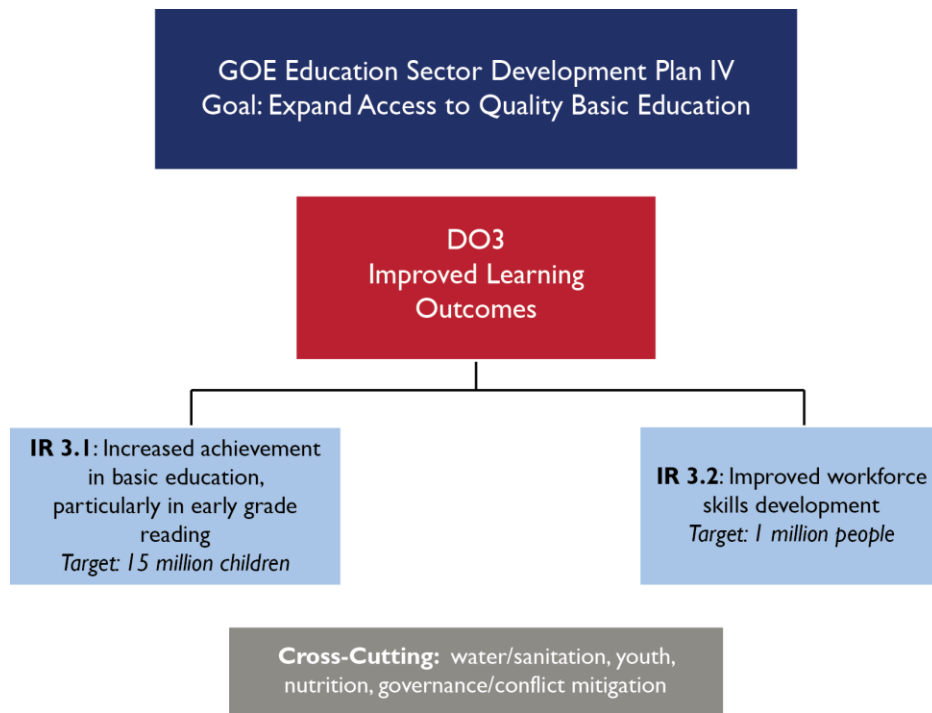


Because Ethiopia’s large and mostly rural population faces significant health challenges, USAID’s DO2 will support the GoE’s 15 health priorities for the next five years through improvement of health service delivery. The intermediate results are as follows:

1. Improved provision of healthcare services by healthcare professions through:
 - a. Increased availability of integrated maternal, neonatal, and child health care,
 - b. Increased availability of prevention care and treatment services for critical diseases,
 - c. Strengthened referral linkages,
 - d. Increased access to essential community-based services.
2. Improved health systems management and integration at national and community levels through the following intermediate results:
 - a. Strengthened human resources for health, particularly focusing on increasing supply and quality of midwives,
 - b. Expanded health financing options, strengthening strategic information for decision-making,
 - c. Increased health commodity and drug security,
 - d. Improved health infrastructure and lab systems,
 - e. Strengthened policy, planning, and governance.
3. Increased demand for health care services via health promotion, social and behavioral change promotion, and community basic care. Sub-goals include:
 - a. Expanded health promotion,

- b. Increased knowledge and improved attitudes toward utilization of formal healthcare services,
- c. Increased healthy behaviors.

FIGURE 9. DO3: IMPROVED LEARNING OUTCOMES



DO3 involves the building of new schools and alternative basic education centers, decentralization of education, and national campaigns on the importance and mandatory nature of education. Progress in these areas will be assessed through the following IRs:

1. Increased achievement in basic education, through an overhaul of the curriculum to focus on reading;
2. Improved workforce skills development through teaching of basic literacy and numeracy, critical thinking, decision making, and rational analysis to underserved adults.

Support Objective (SO) Improved Governance Environment for Sustainable Development is a cross-cutting aspect of the overall USAID strategy in Ethiopia. The SO focuses on conflict sensitivity and social accountability of activities through a community-targeted approach. Specifically, this SO applies to aspects of biodiversity and forests in that it helps local communities manage natural resource-based governance and mitigate conflict over these resources.

4.2 PROGRAMMING

USAID’s portfolio in Ethiopia is one of the largest and most complex in Africa. USAID’s program is overwhelmingly dictated by Congressional earmarks—virtually all of Ethiopia’s funding is earmarked. This section will describe USAID programming in terms of key subject areas, not the current organizational structure of USAID/Ethiopia offices.

4.2.1 AGRICULTURE AND FOOD SECURITY

Ethiopia’s economy is dependent on agriculture, and the country’s rapidly growing population underscores the need for sustainable and high-quality access to food. Through Feed the Future, USAID enhances food security, increases agricultural productivity, and promotes resilience, especially among vulnerable populations.

Current programs include:

- DFAP (Development Food Assistance Program)
- GRADuate (Graduating Families Out of Poverty)
- Land Administration to Nurture Development (LAND)
- Feed the Future supported Agricultural Growth Program – Agribusiness and Market Development (AGP-AMDe)

Coupled to development-based agriculture and food security programs are the emergency food assistance programs for acute food insecurity, food assistance for refugees, emergency nutrition activities, and a multitude of Office of Foreign Disaster Assistance Programs managed from Washington. One key program is NIMS (National Incident Management System).

4.2.2 DEMOCRACY, HUMAN RIGHTS, AND GOVERNANCE

USAID supports activities in good governance. USAID specifically works with the GoE to improve confidence in the legal system by providing continuing education to the judiciary on legal principles, including human rights. In addition, USAID supports local governments, helping them improve the delivery of services and promote transparency and accountability. USAID works to increase resilience and promote adaptation through the Peace Centers for Climate and Social Resilience (PCCSR) in the Bornea Zone and focuses on the sustainable management of natural resources through the Godere Forest Initiative (GOFORI) in the Gambela region.

4.2.3 ECONOMIC GROWTH AND TRADE

State dominance over the economy severely limits access to credit, private land ownership, and agricultural inputs. USAID strengthens small and medium-sized enterprises and smallholder farms, providing access to credit and technical support. Current programs include:

- LMD (Livestock Market Development)
- PRIME (Pastoralist Areas Resilience Improvement through Market Expansion) – Mercy Corps
- Power Africa

4.2.4 EDUCATION

USAID works with the Ministry of Education and donors to improve student learning outcomes, particularly in early grade reading. USAID's education program helps millions of students advance in their education while building the capacity of teachers and key host-government institutions.

4.2.5 GLOBAL CLIMATE CHANGE INITIATIVE

USAID addresses environmental issues as part of its efforts within Ethiopia, developing initiatives that result in improvements across sectors and promote sustainable development. USAID programs also support biodiversity conservation in some of the remaining natural forests and the revitalization of rangeland productivity in pastoral areas. Current programs include:

- REEAP (REstoring Efficiency to Agriculture Production)
- REVIVE (REstoring Vibrant Villages and Environments)

4.2.6 GENDER EQUALITY AND WOMEN'S EMPOWERMENT

USAID promotes gender equality and women's empowerment across its portfolio, focusing particularly on increasing women's social, economic, and political status. Programs and capacity-building interventions encourage participation of women as beneficiaries, agents of change, and project partners.

4.2.7 GLOBAL HEALTH

USAID supports an integrated health care program that addresses a wide range of needs, including maternal and child health, nutrition, and infectious diseases such as HIV. USAID emphasizes strengthening of health systems and building skilled workforces.

4.2.8 NUTRITION

USAID 's integrated multi-sectoral nutrition program focuses on nutrition-sensitive and nutrition-specific interventions to reduce stunting. Working through Feed the Future and health partners, the program supports the GoE's National Nutrition Program.

4.2.9 WATER

USAID incorporates water-related projects into its health, education, agriculture and humanitarian assistance programs. The primary goal is to save lives and advance development through improvements in water, sanitation, and hygiene (WASH) programs and through sound management and use of water for food security.

4.2.10 HUMANITARIAN RESPONSE

USAID supports government and civil society interaction to improve conflict management policies and practices at the local, regional, and national levels. USAID collaborates with the GoE, international organizations, UN agencies, and other donors to respond to disasters in a timely manner and increase vulnerable populations' resilience to shocks.

5. STATE OF THE ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT

5.1 PROTECTED AREAS

The principal mechanism used by Ethiopia to protect biodiversity, ecosystems, and ecological processes has been a network of wildlife conservation areas and priority forest areas. The total area of the wildlife conservation and forest areas is estimated as 15.5 percent of the area of the country, which is above the global and sub-Saharan average for protected area coverage. These areas contain sites set aside mainly for multiple uses. Before the 2016 Forest Sector Development Plan, forest priority areas were no-take areas for conservation only, but this has been changed. Therefore, the changeover to multiple use will offer an opportunity to study the gains or losses associated with the two different management techniques.

The Ethiopian protected area (PA) system contains several categories, including national parks, wildlife reserves and sanctuaries, which were primarily designed for the protection of wildlife resources, and controlled hunting areas and forest priority areas, for the utilization of wildlife and timber resources. The overall effectiveness of most PAs is low, as many areas are not legally gazetted, receive inadequate funding, and are understaffed and ill-equipped, fail to include local communities and stakeholders from the surrounding area, and therefore providing low levels of biodiversity conservation (Vreugdenhil et al., 2012). An example is Bale National Parks where the rate of deforestation is estimated to be 3.4 percent for 2001-2006. The area is the target of the Bale Eco-Region REDD+ project which is helping to facilitate multiple stakeholders in the protection of these vulnerable forests.

TABLE 3. PROTECTED AREAS MANAGED AND REGULATED BY EWCA

NATIONAL PARK OR WILDLIFE SANCTUARY	AREA (HA)
Abijatta-Shalla Lakes	88,700
Alatish	266,500
Awash	75,600
Babile Elephant Sanctuary 698	698,200
Bale Mountains	247,100
Gambela	506,100
Geraille	385,800
Kafta-Sheraro	500,000
Nechisar	51,400
Omo	406,800
Mago	216,200
Senkelle Hartebeest Sanctuary	5,400
Simien Mountains	41,200
Yangudi-Rassa	473,100
Total	3,745,900

NATIONAL PARK HIGHLIGHTS:

SIMIEN MOUNTAINS NATIONAL PARK

Simien Mountains National Park has been re-demarcated by increasing its size. Furthermore, community-managed protected Afro alpine and sub-Afro-alpine ecosystems such as Guassa and Abune Yoseph are demarcated and legalized as parks. Other activities include ecosystem and fauna research, monitoring and conservation, reducing the negative impact of the interaction between humans and the wildlife, strengthening of traditional grassland management systems, awareness-raising campaigns to farmers, and tourism feasibility studies. As a result of these interventions, a number of threatened and endemic mammals such as *Walia ibex* and the Ethiopian wolf are showing improvements overtime in SMNP and Guassa.

BALE MOUNTAINS NATIONAL PARK and HARENNA FOREST

Bale Mountain National Park (BMNP) is home to a unique assemblage of Afro-montane species, many of which are endemic and/or endangered. The Afro-alpine habitat in BMNP is the largest uninterrupted expanse in all of Africa and its moist tropical forest is the second largest in Ethiopia. The park is home to more endemic mammals than any other similarly sized area on the planet and, importantly, to two endemic and endangered species, the Ethiopian wolf and the mountain nyala. Additionally, the Bale Mountains are the headwaters to approximately 40 rivers, five of which are classified as major rivers. The Bale Mountains provide essential ecosystem services to 10-12 million people downstream in Somalia, Kenya, and southeastern Ethiopia by providing water for agricultural use and generation of energy via hydropower dams.

BMNP encompasses several unique ecotones, including the Afro-alpine, *Haremma* forest, tree heath (*Erica spp.*), a shrub common in the western world that thrives in the Bale Mountains, and high-elevation grasslands, and juniper woodlands. The Haremma forest, also called cloud forest, is the second largest forest in Ethiopia and the largest cloud forest in the country. At least 26% of Ethiopia's endemic species are found in the park, however, new species continue to be discovered within the park. Over 300 species of birds, six of which are endemic, are found in the park. The endemic bird species include the blue-winged goose (*Cyanochen cyanoptera*), spot-breasted lapwing (*Vanellus melanocephalus*), yellow-fronted parrot (*Poicephalus flavifrons*), Abyssinian longclaw (*Macronyx flavicollis*), Abyssinian catbird (*Parophasma galinieri*), and the Ethiopian/black-headed siskin (*Serinus nigriceps*). Additionally, several rare and endemic amphibian species are found only in BMNP as well as more than 1,300 species of flowering plants, of which 163 are endemic to Ethiopia. Twenty-three flowering plant species are found only in the Bale Mountains.

The Ethiopian Wildlife Conservation Authority (EWCA) manages 13 national parks (Table 3) and wildlife sanctuaries and regulates and administers quota-setting and licensing in controlled hunting areas. Annex 5.1 lists other protected areas, including a number of national parks, wildlife reserves, and controlled hunting areas managed by various regional authorities in the various regions of the federation.

The principal threats to biodiversity of Ethiopia stem from i) *de facto* open access to resources leading to degradation of habitats; ii) conversion of land to agriculture; iii) overgrazing by large livestock populations, iv) weak institutional and financial capacity to manage protected areas; and v) invasive species (Young, 2012). The protected area system plays an important role in counteracting these threats by providing refuge for fauna and flora and by protecting critical ecological processes. However, the protected areas are not entirely representative of the ecosystems within the country and many areas are not correctly sited or too small to maintain ecological processes. Further, some of the nominal areas no longer have any functional meaning, as the biodiversity they were established to protect is long gone.

The global significance of the area has been recognized through Conservation International's Biodiversity Hotspots. The country spans two Hotspots: the Horn of Africa and the Ethiopian Highlands (which is included in the Eastern Afro-montane Hotspot). As shown in Figure 10, the areas included in the Hotspots cover the majority of the country, including the entire eastern area of Ethiopia below 1,100 meters above sea level and all highland areas above 1,100 meters. The highlands of Ethiopia provide water for the people, livestock, wildlife and riparian vegetation in the lowlands. In this highland-lowland system resources are not equally distributed but are dynamically interlinked. Thus, the people, livestock, wildlife, and riparian vegetation in the lowlands are dependent on the good management and protection of the watersheds in the

highlands as well as the neighboring communities outside the boundaries of Ethiopia in Somalia, Kenya, and Sudan. Throughout the country there are many designated protected areas of land including national parks, wildlife reserves, priority forests, biosphere reserves, and community conservation areas (Young, 2012).

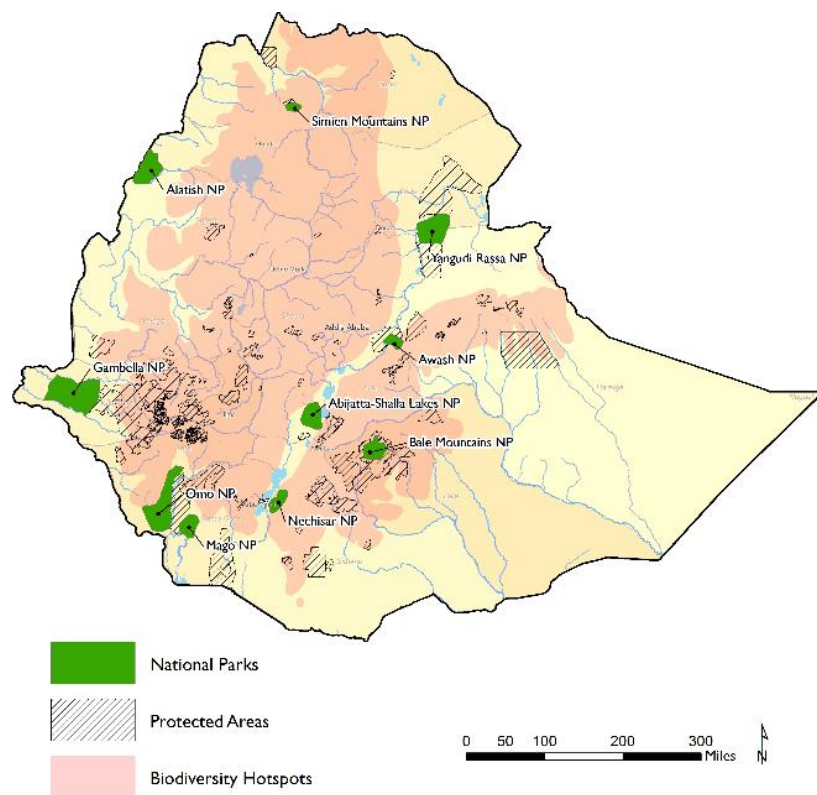


Figure 10. Biodiversity hotspots and protected areas as of 2016 (including National Parks, sanctuaries, and National Forest Priority Areas).

Ethiopia’s protected areas are increasingly degraded. Land is being converted for subsistence and commercial agriculture, timber used for fuelwood and construction, and protected grasslands used for livestock grazing. The loss of forests and other protected land is underpinned by a growing population, unsustainable natural resource management, poor enforcement of existing legislation, uncertain land tenure, and very low public awareness of the impact of climate change and the importance of biodiversity and ecosystems. For example, despite the protection guaranteed to national parks in the most recent Wildlife Proclamation, parts of Omo and Mago National Parks have been cultivated for sugar plantations, agricultural expansion threatens part of Gambela National Park, and permanent human settlements in Bale Mountains, Awash, Simien

Mountains, and Abijata Shala National Parks increasingly upset the ecosystem (Young, 2012).

5.2 FORESTS

Ethiopia has 17 million hectares of forests comprising natural and planted forests and woodlands, with coverage of about 15.5 percent of the country (unreleased data in MEF 2015). The Ethiopian forests and woodlands are seriously threatened by deforestation, habitat destruction, subsequent decline in regeneration, expansion of invasive species, agricultural expansion, and forest fires. The most important threats to forest genetic diversity are deforestation and forest fragmentation. A total of 103 tree and shrub species are considered endangered species according to the International Union for the Conservation of Nature (IUCN) Red List (IUCN, n.d.).

Illegal logging, firewood collection, overgrazing, and invasive species are threats to forests throughout the country. Land use changes, including commercial farming and population pressure, are other threats to forest and rangeland plants.

In order to conserve and promote sustainable utilization of forest and rangeland plant genetic resources, a total of 2,000 accessions of 260 forest species are conserved at gene banks at Ethiopia Biodiversity Institute. Forests are also conserved in PAs, National Forest Priority Areas (NFPAs) and other in situ conservation sites such as area closures, church forests, sacred forests, and community forests. However, because of increasing human and livestock pressure on the resource base and a lack of land

use plans, the conditions in PAs, including NFPAs, are deteriorating, or cease to exist except in a few areas. To curb some

of these problems, some forest areas such as Yayu, Kafa, and Sheka have been designated biosphere reserves and recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), and 15 in situ sites have been established by EBI in Benishangul-Gumuz, SNNPR, and Oromia Regions.

Afforestation and exclosures are long established practices in Ethiopia (as early as the 1890s), although most of these activities have been the purview of NGOs and farmers, and to some extent the GoE, but with limited engagement by the private sector. The central and northern highlands have been the areas most affected by deforestation due to agricultural expansion and need for fuelwood, and so, exclosure and afforestation efforts have also focused in these areas. In 2013, Tigray had 1.54 million hectares of exclosure (Gebresilassie, 2013) and Amhara had 1.55 million hectares (BoA, 2013). The GoE as part of the CRGE set targets for afforestation on 2 million hectares, reforestation of 1 million hectares, and improved management on another 3 million hectares, helping Ethiopia achieve 50 percent abatement of greenhouse emissions by 2030 (GoE 2011). Although the practice of reforestation is widespread and a clear target, the effectiveness of the re-greening initiatives are in question. During the workshop held as part of this assessment, respected government and academic experts identified survival and tree species selection as major issues with re-greening. Conflicting benefits from re-greening is one issues with farmers primarily participating based on economic gains and NGOs promoting re-greening for biodiversity, conservation, food security, and carbon sequestration purposes (Lemenih and Kassa, 2014). Balancing environmental versus socio-economic benefits is critical to success.

Plantations (both small scale and industrial) are also an important component of Ethiopia's forest reserves with nearly 1 million hectares (Lemenih and Kassa 2014). These plantations supply a vast amount of the poles (92 percent) and firewood (85 percent) for rural households. High rates of return (as short as 5 years) has led to conversion of some farmland to eucalyptus woodlots (Jenebere et al., 2011). However, most of the species

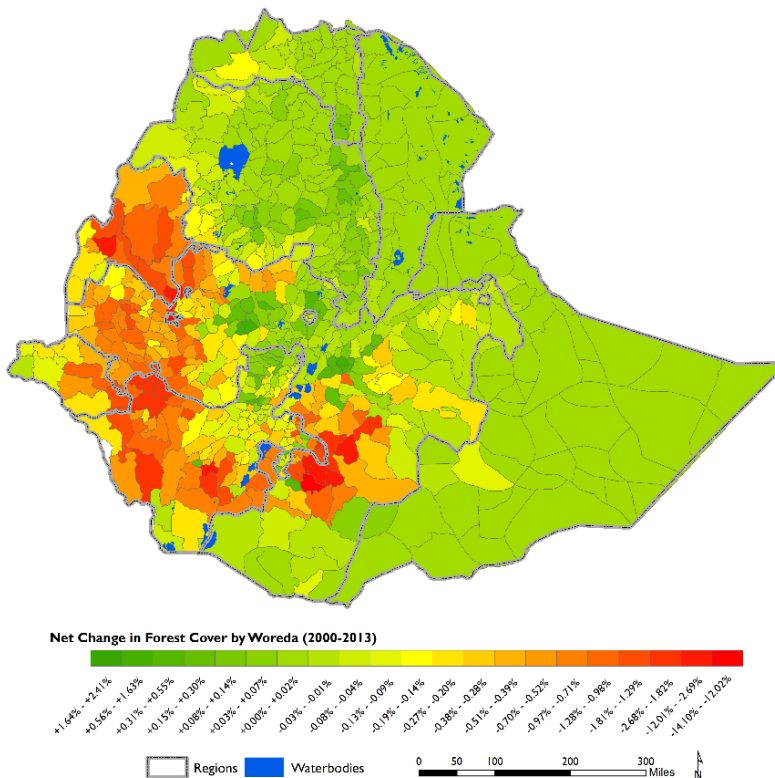


Figure 11. Woredas with the highest loss of forest from 2000 to 2013 (calculated as the change in land cover from forest to other averaged across the woreda).

of plantations are represented by four genera: Eucalyptus, Cupressus, Pinus, and Acacia. The use of exotic species is attributed to their ability to propagate on degraded lands and also due to legal restrictions on the use of native species by private households.

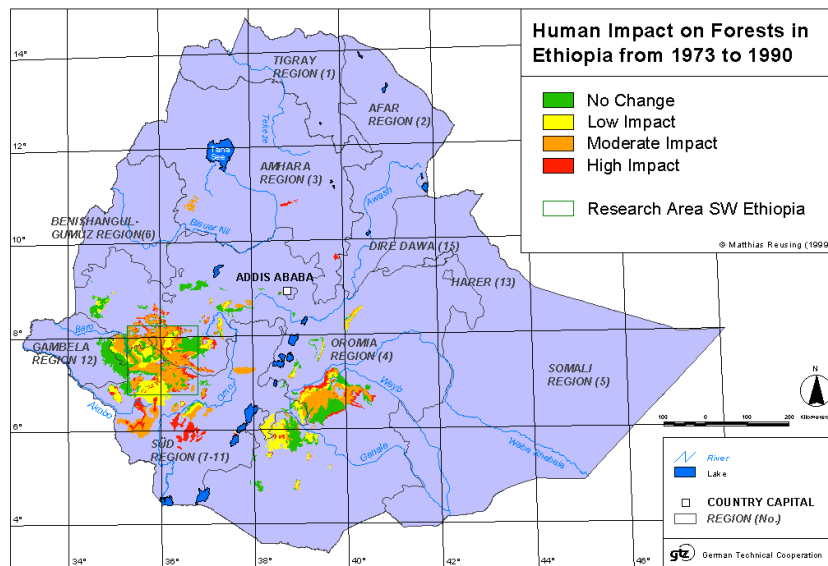


Figure 12. Forests impacts as calculated from 1973 to 1990 (Reusing 2000).

Figure 11 shows more recent net forest cover change rates from 2000-2013 which range from a 14 percent loss to a <2 percent gain averaged across the woreda. The map shows that the change in forest cover, as a percentage of the woreda total land area, was greatest in areas with standing forests of the southwest and south, as would be expected and as was consistent with the similar highly impact areas identified by Reusing (2000) in Figure 12. These are the areas which also are correlated with National Forest Priority Areas (see also Figure 10).

Loss of forest is most pronounced in regions of Gambella, SNNP, and Oromia where highly forested highlands are predominate (based on geospatial data calculations which account for total forest loss of the total woreda land area in Figure Figure 11). Areas of Amhara and Tigray have seen increases in the amount of forests, likely due to afforestation programs deeply in which the GoE has deeply invested as well as watershed rehabilitation programs by ORDA and other organization including those supported by USAID. The GoE in since the famine of the 1970s has invested in planting of billions of trees, yet the data is poor on survival rates of these tree planting campaigns and when there is data, reports are that the planting are commonly exotic species and the diversity is low. However, the Amhara and Tigray regions are also threatened by commercial farming expanding from the lowland areas.

Based on the map, deforestation appears to be most pronounced around areas where mechanized agriculture is evolving, in areas of mining, around protected areas, and in transition zones between lowland and highland areas. Shakiso woreda has the highest rates of deforestation overall (14 percent), likely due to mining development and forest fires activity as well as the pressures faced by other woredas (Lemessa 2001). The transition zones between highlands and the dry lowlands of the country have forests particularly threatened. The belt of woredas with high deforestation between Shakiso and the protected Harenna forest is also an area of extreme population growth and grazing pressure partially from naturally growing communities and partially from in-migration from lowland areas. On the lowland forests of the western portion along the South Sudan border also has seen high levels of deforestation. These productive areas are attractive for hydropower development, mechanized ag, and are subject to agricultural expansion as it is pinched between migration and

refugee populations coming from the west and those moving from the highly population central region. Deforestation during the 1970s was attributed to settlement from the north and central parts of Ethiopia and use of agricultural systems not well adapted to the area (Reusing 2000), especially around Bonga and the Kaffa Biosphere Reserve. Later in the 1980s, resettlement programs also created a demand for fuelwood and construction timber, so forests resources continued to decline.

5.3 ECOSYSTEMS AND ECOSYSTEM SERVICES

Ethiopia’s biogeography is characterized by two dominant features: the arid areas of the Horn of Africa, with the Ogaden center of endemism and the mesic highland plateaus where climate instability and highland isolation has also resulted in significant endemism. Ethiopia has over 6,000 species of vascular plant (with 625 endemic species), 860 avian species (16 endemic species), 279 species of mammal (35 endemic species), 201 species of reptile (14 endemic species), 23 species of amphibians (all endemic), and 150 freshwater fish species (6 endemic).

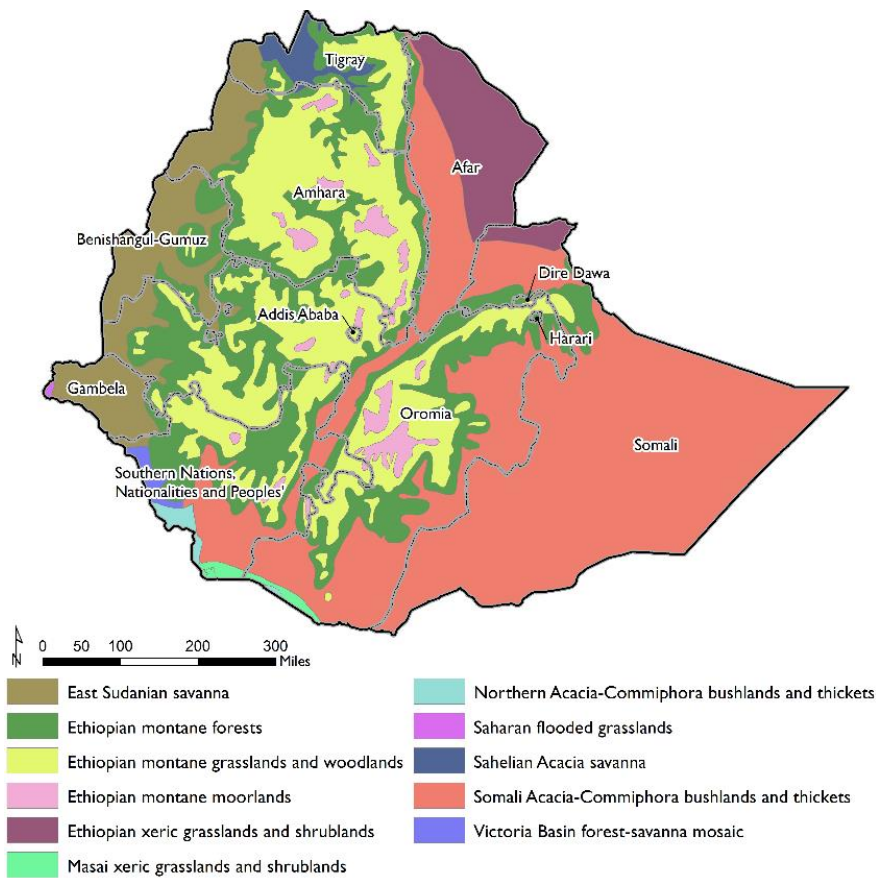


Figure 13. Ecoregions of Ethiopia (Data sourced from WWF 2016).

As stated by Young (2012), vegetation of the country falls into five recognized biomes: Sudanian, Congo-Guinean, Sahel arid zone, Somali-Masai, and the Afro-tropical/montane. These can be subdivided into ecoregions (WWF, 2016 and Young, 2012) as shown in Figure 13. The National Biodiversity Action Plan (IBC, 2005) provides a more detailed overview of ecosystems and the threats of the systems that in provided here.

Ethiopian Highlands (including Ethiopian montane moorlands, Ethiopian grasslands and woodlands):

1. **Afro-alpine Ecosystems** (including Ethiopian montane moorlands) are under pressure from growing human and livestock populations in surrounding areas and subsequent expansion of agricultural and grazing lands. Efforts are underway to improve the status of some areas of this ecosystem. For example, the Bale Mountains National Park (BMNP) is legalized and demarcated, and a management plan has been prepared for effective and efficient management of the park (FZS, 2007).
2. **Montane Grassland Ecosystem** (including Ethiopian montane moorlands and Ethiopian montane forests) provides livestock husbandry services, which have been intense for years. Livestock density is creating extreme pressures as well as fuel wood demand. As a result, the ecosystem has experienced considerable habitat degradation. The main threats to this ecosystem are agricultural expansion, overgrazing, and overharvesting of selected species. Currently, in Tigray, Amhara, Oromia, SNNPRS, integrated soil and watershed management and area closure measures are being undertaken to rehabilitate degraded areas.

Forests Ecosystems (including montane forests and tropical forests)

3. **Moist Montane Forest Ecosystem:** Human activities such as timber extraction, commercial coffee and tea plantations, small-scale agriculture, and grazing expansions and settlement are the major threats to this ecosystem. The ecosystem is dominated by tree species with seeds that do not survive drying and freezing during ex-situ conservation. Despite the above pressures, regional governments are taking various measures to manage and maintain the ecosystem. Some of the forest areas are given to concession for joint government and community management where local communities are organized and encouraged to work and obtain benefits from non-timber forest products. Consequently, illegal timber cutting and wood collection have been reduced. Because of inadequate data, however, it is difficult to document trends in these forests.
4. **Lowland Tropical Forest Ecosystem:** The lowland tropical forest ecosystem is facing pressure from settlements and agricultural expansion. Furthermore, slash and burn agriculture has contributed to the shrinkage of this ecosystem. Consequently, many wild animals including large mammals such as antelopes are under threat. Conservation measures that have been taken include formulation of forest legislation, preparation of management plans, establishment of conservation areas, and implementation of Participatory Forest Management.

East African and Horn of Africa Acacia Savannas (including Northern and Somali Acacia-Commiphora bushlands and thickets, East Sudanian savanna, Sahelian Acacia savanna, Victoria Basin Forest-savanna mosaic):

5. **Acacia-Commiphora Woodland Ecosystem:** Expansion of large-scale agriculture, cotton, sugar cane and biofuel plantations are the major development activities taking place. They are recent phenomena contributing to land degradation and loss of biodiversity. Intense fuelwood collection and charcoal-making and expansion of invasive alien species have also contributed to the loss of species diversity and habitat degradation. Although limited, measures are being taken to minimize or halt the invasive species, especially *Prosopis*. Efforts are also being made to designate some protected areas. Re-demarcation activities such as those at Awash and Abijata-Shalla National Parks are also being carried out to ensure effective management.
6. **Combretum-Terminalia Woodland Ecosystem:** Encroachment and expansion of small- and large-scale agriculture for crops such as sugar cane, cotton, sesame, rice, and biofuel plantations are aggressively undertaken in this ecosystem. Furthermore, overgrazing and shifting cultivation are causing deterioration of the ecosystem. Consequently, many wild animals (including lion, cheetah, giraffe, and buffalo) and unique plants such as *Vitellaria paradoxa*, *Oxythaentara abyssinica*, and *Boswellia papyrifera* are under threat. To address the threats, different efforts including forest plantations, implementation of Participatory Forest Management, awareness-raising, demarcation and designation of protected areas

such as Alatish, Qafta Shiraro, Anbessa Chaka, and Gambela National Parks are under way in this ecosystem.

- 7. Dry Evergreen Montane Forest and Evergreen Scrub Ecosystem:** This ecosystem is under severe threat of habitat conversion caused by deforestation for wood products (especially for fuelwood) and agricultural expansion, overgrazing, and fire. However, the regional governments are taking various measures to improve the management status of this ecosystem. In Adaba Dodola Wereda, Oromia Region, for example, forest concessions are jointly administered by government and community through benefit-sharing arrangements, carbon trade, and other incentive measures. These interventions are aimed at increasing the participation and responsibilities of local communities in the management and conservation of natural resources.

Grasslands and shrublands (including Ethiopian xeric and Masai grasslands and shrublands)

- 8. Desert and Semi-desert Scrubland Ecosystem:** Overgrazing, bush encroachment, and invasive species such as *Prosopis juliflora* and *Acacia drepanolobium* in the Eastern and Southern lowlands of Ethiopia are among the factors threatening the desert and semi-desert scrubland ecosystem. Expansion of small- and large-scale farming of palm tree, sugar cane, and cotton are major activities taking place in this ecosystem. Furthermore, widespread firewood collection and charcoal-making have contributed to the deterioration of this ecosystem.

Aquatic system (including rivers, lakes, and Sudd-Sahelian Flooded Grasslands)

- 9. Wetland Ecosystems:** Wetland biodiversity is under severe pressure as human exploitation of this resource increases. Further, climate change has increasingly become real, causing droughts, floods, and, in general, extreme variability. Wetland ecosystems are under pressure from uncontrolled conversion of the ecosystem to agriculture (especially for rice production), overexploitation of wetland resources, deforestation, soil erosion and land degradation, siltation, climate change, and pollution. The Fogera and Chefa wetlands in Amhara Region are, for example, highly affected by excessive use of swamps and floodplains for cultivation of rice and other horticultural crops. Lake Haromaya and the Boye-kito wetland near the town of Jimma have been totally lost, and Lake Cheleleka in the town of Bishoftu has shrunk due to agricultural expansion and urbanization. Efforts are being made in some regions such as Oromia, Amhara, and SNNPR to tackle these threats. To manage the Wichl wetland found in Illuababor Zone (Oromia Region), for example, integrated watershed management, livelihood improvement, and family planning efforts are under way.
- 10. Aquatic Ecosystem:** In Ethiopia, aquatic ecosystems are highly affected by various anthropogenic activities such as pollution, sedimentation, eutrophication, diversion of water, and overexploitation of fish stocks. Damming and diversion of rivers, channeling and building of water distribution facilities, removal of riparian vegetation cover, mining, and similar activities are playing destructive roles in changing this ecosystem. Invasive species such as water hyacinths are also becoming threats to this ecosystem. Conservation efforts directed to the ecosystem are minimal, and Rift Valley lakes in particular are in great danger. The current trend at Lake Abijata for example, suggests that the lake could dry up in the near future due to diversion for irrigated agriculture, soda ash plants, and damming (Fekadu, 2013).

5.3.1 STATUS OF AGRICULTURAL BIODIVERSITY

Ethiopia is one of the eight Vavilovian Centers of crop origin/domestication and diversity and harbors crops of global importance, including sorghum, millet, Arabica coffee, durum wheat, and teff, (Fassil Kebebew, 2010, cited in Ethiopia Academy of Sciences, 2015). Fassil Kebebew (2010) also reported that Ethiopia harbors important gene pools of wild relatives for at least 120 species of crops, including grains, pulses (legumes), oil seeds, vegetables, tubers, fruits, spices, stimulants, fibers, dyes, and medicinal plants. In addition, several crops that were domesticated outside of East Africa exhibit high secondary diversification in Ethiopia, as evidenced in farmer varieties of wheat, barley, and several pulses.

Gambela is home to Ethiopia's sole tropical mountain rainforest, the largest national park in Ethiopia, and distinct ethnic groups (the Majener and Nolo-Saharan speaking groups). The wet tropical environment, fertilized by the Nile, makes Gambela uniquely suited for large-scale agriculture in comparison to other districts. Multinational corporations have invested heavily in the area to grow cereal crops, soy, cotton, edible oil, and other crops destined for the export market. To make way for the multinationals, forests have been cleared and local communities have been resettled sometimes resulting in resistance when full consent was not achieved. Due to these challenges and the more general difficulties of bringing machinery and training workers, multinational investment in this region often fails. Thus, despite Gambela's environmental advantages, Gambela produces ~2 percent of the country's coffee, and few multinational owned farms in this region produce exports or employment.

In Ethiopia, of the 150 megatons (Mt) of carbon dioxide equivalents (CO₂e) emitted in 2010, more than 85 percent came from the agricultural and forestry sectors (CRGE, 2011). The cultivation of crops contributes to the concentration of greenhouse gases mainly by requiring the use of fertilizer (the production of which results in emissions of ~10 Mt CO₂e) as well as by emitting nitrous oxide (N₂O) from crop residues reintroduced into the ground (~3 Mgt CO₂e).

In current agricultural practice, crop residues are burned, agriculture is intensified (e.g., through mechanization and increased fertilizer/agrochemical use) and livestock are raised, resulting in emission of large quantities of greenhouse gases such as CO₂, methane (CH₄), and N₂O. Apart from those primary agricultural activities, the associated land-use change (i.e., clearing and burning of forests) also contributes significantly to CO₂ emissions. The greatest factor contributing to the loss of crop genetic diversity is the spread of high-input, industrial monoculture and the displacement of more diverse, traditional agricultural systems (Sundar, 2011, cited in Ethiopian Academy of Sciences, 2015).

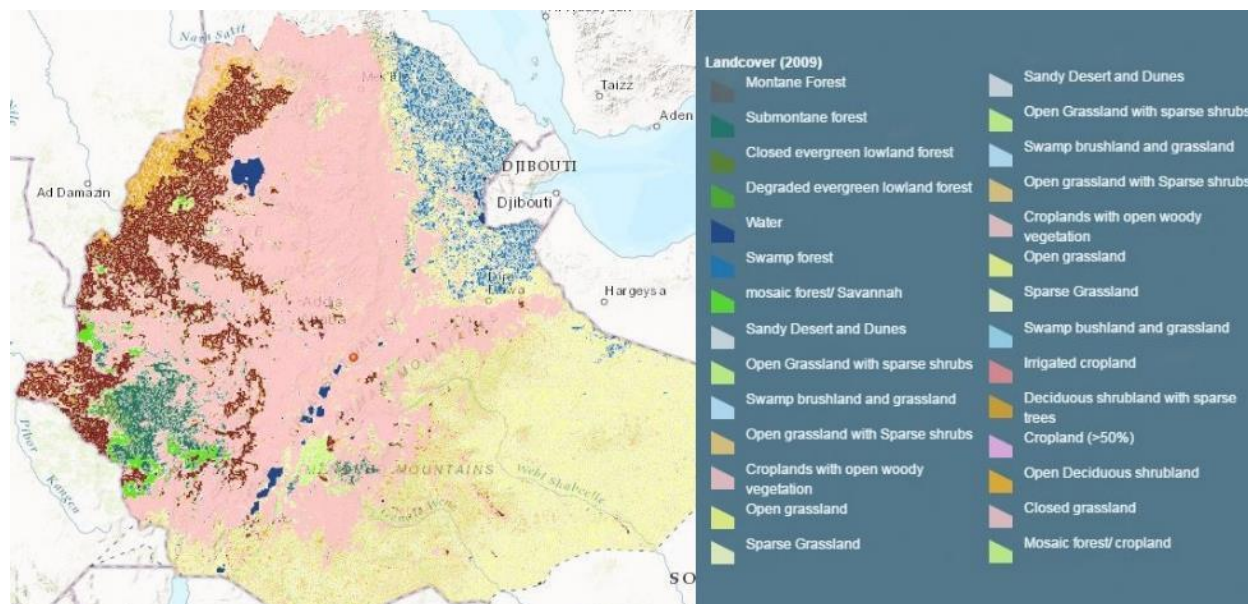


Figure 14. Detailed land cover map (GAFSP, n.d.).

The ability of a certain variety to withstand drought, grow in poor soil, resist an insect or disease, give higher protein yields, or produce a better-tasting food is a trait passed on naturally by the variety's genes. This genetic material constitutes the raw material that plant breeders use to breed new crop varieties. Without genetic diversity, options for long-term sustainability and agricultural self-reliance are lost.

5.3.2 CULTIVATED PLANTS AND THEIR WILD RELATIVES

FIELD CROPS

The number of crop varieties maintained by farmers is decreasing over time. Climate change calls for a better understanding of the resilience of farmers' varieties to unreliable rainfall, frequent drought, and diseases and pests (which may spread more easily under new climates). Displacement of farmers' varieties by improved ones and the shift to market-oriented crop production particularly affect the availability of field crop genetic resources.

Wild relatives of crop species provide genetic resources that could be used for breeding resilient crop varieties. Most of the crop wild relatives are found growing as weeds on marginal fields, traditionally managed agricultural lands, and in disturbed habitats such as road sides. The natural populations of many species of crop wild relatives are increasingly at risk. They are threatened primarily by habitat loss, degradation, and fragmentation.

In order to conserve and promote sustainable utilization, the Ethiopian Biodiversity Institute (EBI) has conserved different field crops in cold rooms. The majority of plant species conserved in the gene bank are field crops. To promote on-farm conservation activities, over 12 community seed banks obtain technical support from EBI and Ethio-organic Seed Action to strengthen their capacity and ensure continued cultivation of farmers' varieties.

In addition, EBI is now part of a global initiative called Seeds for Needs initiated by Biodiversity International. The initiative aims at understanding the potential of genetic diversity to adapt to climate change and to be reintroduced in production systems.

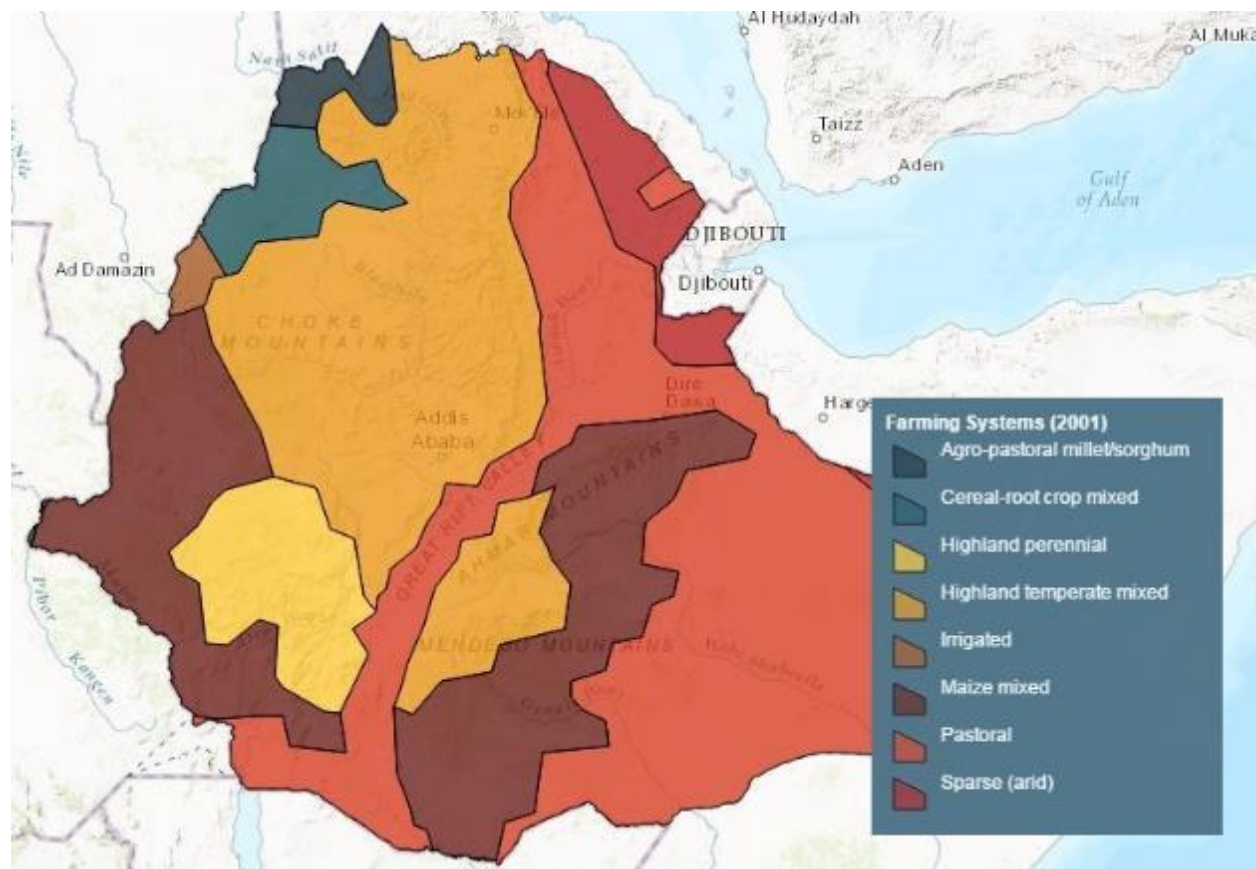


Figure 15. Historical farming systems.

HORTICULTURAL CROPS

Horticultural crops grown in Ethiopia include root and tuber crops, fruits and vegetables, stimulants and beverages, and herbs and spices. In Ethiopia major threats to horticultural plant species are drought, pests, diseases, replacement by food grains, and deforestation. Deforestation mainly affects wild coffee and spices. The gene pool of *Coffea arabica* is highly endangered by increasing settlement and land use pressure on the montane rain forests. Imported horticultural plants are also becoming threats to farmers' local varieties.

In recognition of such threats, EBI has established a number of field gene banks in agroecologically representative parts of the country to conserve and promote sustainable utilization of horticultural crops.

5.3.3 WILD PLANTS

MEDICINAL PLANTS

Medicinal plants have significant roles in traditional health care. However, the majority of the medicinal plants utilized in Ethiopia are harvested from the wild. Therefore, most of the threats to forest and rangeland plants are also threats to medicinal plants. Moreover, uprooting and unsustainable utilization are the major threats to medicinal plants. Some efforts have been made to conserve and promote sustainable utilization of medicinal plants in the country. For example, EBI established ex situ conservation sites for medicinal plants in representative areas (Wondo Genet, and Bale, Goba).

RANGELAND AND FORAGE GENETIC RESOURCES

Similar to other areas, overgrazing, drought, invasive species, and conversion of grazing lands to cropland are the main threats to forage species. Activities such as clearing invasive species, selecting and multiplying productive forage species adaptable to specific sites, testing indigenous tree species suitable for feed, banning open grazing and enclosing rangelands, are being undertaken to ease the pressure on rangelands and forage resources.

EDIBLE WILD PLANTS

In Ethiopia, studies conducted on edible wild plants cover only about 5 percent of the country. Hence, the state of edible wild plants in Ethiopia is not well known. The contribution of wild plants and associated community knowledge to food security is neglected. Factors that threaten forest resources are also the threats to edible wild plants and their natural ecosystems, resulting in a decrease in the diversity of these plants.

5.6.2 ANIMAL BIODIVERSITY

FARM ANIMAL GENETIC RESOURCES

The population of domestic animals in the rural sedentary areas of the country (excluding three mobile pastoralist zones of Afar and six zones of Somali Regions) is estimated at 55.03 million cattle, 27.35 million sheep, 28.16 million goats, 1.1 million camels, 51.35 million chickens, 1.96 million horses, 0.36 million mules and 6.95 million donkeys (CSA, 2014, cited in EBI, 2015).

Identification and characterization activities conducted on livestock resources of Ethiopia are not exhaustive. As a result, there is no complete and up-to-date breed-level data for most of the breeds, and this makes determination of their status and any changes in their status difficult. There are, however, some indigenous breeds which are known to be under threat. Sheko (the only taurine breed in East Africa) and Fogera cattle appear to be highly threatened as a result of interbreeding with other local breeds and changes in the production system. In addition, Begait, Irob, Ogaden, Afar, and Borena cattle breeds; sinnar donkey; and Afar, Menz, and Gumuz sheep breeds are also facing various degrees of threat.

Ever-increasing demand for export (both legal and illegal) of cattle, goats, sheep, and camels threatens indigenous animal populations because traditional breeding systems cannot keep up (IBC, 2009).

Some activities are under way to conserve domestic animal diversity. To promote conservation and sustainable utilization of local breeds, ranches have been established in different parts of the country for Begait, Borena, Horro, and Fogera cattle breeds. Furthermore, semen from Fogera, Begait, Sheko, and Irob indigenous cattle breeds has been collected and cryo-conserved. Sheko, Irob, Begait, Afar, and Begaria cattle; Afar sheep and Black Head Somali sheep; Woito-Guji and Abergele goat; Kundudo horse breeds; and Mandura chicken breeds have been conserved in situ.

In Ethiopia, major causes of threat to farm animal genetic resources are feed shortage, overgrazing, encroachment by invasive species, and expansion of crop cultivation into both grazing lands in the highlands and marginal areas in the lowlands. Additional threats come from diseases and parasites, shortage of quality drinking water, and poor housing. Particularly, the gene pool of indigenous chicken breeds is under pressure from replacement by pure exotics and their hybrids (IBC, 2012d).

Due to its diverse climates and rich and diverse flora, Ethiopia possesses over 10 million bee colonies. Out of these, about 5 to 7.5 million are estimated to be hived while the remaining exist in the wild (CSA, 2009). More than 95 percent of bee-keepers use traditional systems (IBC, 2012c). Major threats to honeybees include vegetation loss, disease and pests, predators, and pesticides and herbicides (IBC, 2004, 2005, 2012d).

WILD ANIMAL GENETIC RESOURCES

Ethiopia encompasses a broad range of ecosystems with great varieties of habitats contributing to the occurrence of high faunal diversity. Data and information on the diversity of wild fauna as a whole is not yet complete. According to the existing data, the Ethiopian wild fauna is comprised of 284 mammal, 861 bird, 201 reptile, 200 fish, 63 amphibian and 1,225 arthropod (out of which 324 butterfly) species. Of these faunal resources, 29 mammal, 18 bird, 10 reptile, 40 fish, 25 amphibians and seven arthropods species are endemic to the country (USAID 2008; IBC 2009; Habteselasseie, 2012).

Information on the status and trends of wild fauna as whole is limited. According to the IUCN red list (IUCN, 2008), Ethiopia has five critically endangered, 27 endangered, and 47 vulnerable species of wild animals.

Of the total 284 mammalian species, those that require urgent conservation action include Walia ibex (*Capra walie*), Gelada baboon (*Theropithecus gelada*), mountain nyala (*Tragelaphus buxtoni*), Ethiopian wolf (*Canis simensis*) and Starck's hare (*Lepus starcki*). Some of these endangered species have very restricted distribution, including Walia ibex, which is the most endangered mammalian species in the world (IBC, 2005, 2009).

Assessments on the status of birds in Ethiopia indicated that 31 bird species of the country are facing various levels of threat. Five of these, namely: *Sarothrura ayresii*, *Tauraco ruspolii*, *Heteromirafra sidamonesis*, *Serinus flavigula*, and *Serinus ankoberensis* are critically endangered, 12 species such as *Aythya nyroca*, *Aquila clanga*, *A. bellaca*, *Falco naumanni*, and *Francolinus barwoodi* are endangered, and 14 species such as Prince Ruspoli's turaco, greater spotted eagle, lesser kestrel, yellow throated serin, Nechisar nightjar, and wattled crane are vulnerable to extinction. Various migratory birds considered as endangered at the international level also visit about fifty sites in Ethiopia every year. Moreover, parts or all of the three endemic bird areas (EBAs) lie within Ethiopia. These are the Jubba and Shabelle Valleys EBA, the South Ethiopian highlands EBA and the central Ethiopian highlands EBA (Birdlife International, 2001).

According to IUCN (2008), the number of threatened species (critically endangered, endangered, and vulnerable) of reptiles, amphibians, fishes, mollusks, and other invertebrates are 1, 9, 2, 3, and 11, respectively. Among the reptiles, python has been critically endangered in the Lake Tana sub-basin due to habitat fragmentation and loss, and partly due to persecution by humans. Three species of reptiles found in the sub-basin, namely, the Nile crocodile, water snake, and Nile monitor, are rated as vulnerable (Seyoum Mengistu et al., 2005). Some reptiles and amphibians are facing high pressure and there is a possibility of extinction due to habitat destruction (Largen and Spawls, 2006).

5.4 WATER RESOURCES

Ethiopia is known as the “water tower” of Africa and is endowed with considerable water resources including diverse wetland ecosystems, 14 lakes, and 12 river basins, which form four major drainage systems: The Nile Basin, Rift Valley, Shebelli-Juba Basin and North-East Coast. Integrated development master plan studies indicate a total estimated annual surface water flow of approximately 122 billion cubic meters as well as substantial ground water storage. Water resources also underpin key economic sectors like agriculture, which alone accounts for more than 40 percent of GDP and employs 85 percent of the work force (Central Intelligence Agency, 2016). Ethiopia has also benefited from small, medium and large dams, which supply water for irrigation, drinking water, and more than 95 percent of its energy (World Bank Group, 2016).

Despite the potential of Ethiopia’s water resources, the country faces a range of serious challenges in water management. These are partly due to extreme hydrological variability, coupled with marked rainfall seasonality. With poorly protected watersheds and almost no investment in water storage, a consequence of this hydrological variability is endemic and unpredictable drought and flood. The uneven distribution of drinking water across the country, low percentage of irrigated land, and high level of poverty has also meant that Ethiopia’s people have one of Africa’s lowest rates of access to water supply, sanitation, and hygiene despite the abundant surface and groundwater resources (World Health Organization, 2016).

Water quality is also an issue. For example, Lake Tana is plagued by high nutrient loads from agricultural runoff and sedimentation. Widespread low-productivity agricultural development has exacerbated cycles of algal blooms and population explosions of aquatic invasive species like water hyacinth. This has supercharged natural nutrient cycling and threatens native fish species important for local consumption.

5.5 POLICY AND LEGAL FRAMEWORK

Efforts are being undertaken to develop a framework for the sustainable development and protection of the environment in Ethiopia, based on the Environmental Policy and Conservation Strategy of Ethiopia. Guided by the national policies and strategies, the government has signed a number of articles and conventions, such as the Convention to Combat Desertification, Convention on Climate Change or the Kyoto Protocol, Convention on Biological Diversity, Convention on Migratory Species, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which all commit the country to put in place a comprehensive and integrated management of the protected areas system. Specific policies and strategies are yet to be developed to address sustainable development of protected areas.

There are a number of policies, strategies, and proclamations that provide for the conservation, development and utilization of wildlife. The major relevant policy and strategies include umbrella policies and proclamations such as:

- A Proclamation to pronounce the coming into effect of the Constitution of the Federal Democratic Republic of Ethiopia, Proclamation No. 1/1995
- Conservation Strategy of Ethiopia, 1997
- Environmental Policy of Ethiopia, 1997
- National Biodiversity Conservation and Research Policy, 1998
- Rural Development Policies and Strategies, 2002
- National Biodiversity Strategy and Action Plan, 2005
- Wildlife Protection, Development, and Utilization Policy and Strategy 2005
- GTPII

Those specifically relevant to wildlife development, conservation, and utilization are:

- Proclamation for Government Council Ratification of the International Treaty of Endangered Wild Life and Plants Trade, Proclamation No. 14/1989
- A Proclamation to Amend the Institute of Biodiversity Conservation and Research Establishment Proclamation, No. 167/1999
- A Proclamation to Provide Environmental Impact Assessment, Proclamation No. 299/2002
- A Proclamation to Amend the Reorganization of the Executive Organs of the Federal Democratic Republic of Ethiopia, Proclamation No. 380/2004
- A Proclamation to Amend The Institute of Biodiversity Conservation and Research Establishment, Proclamation No. 381/2004
- Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use Proclamation, Proclamation No. 456/2005
- Proclamation for Genetic Resource and Public Rights, Proclamation No. 482/2005
- A Proclamation to Provide for the Development, Conservation and Utilization of Wildlife, Proclamation No. 541/2007
- A Proclamation to Provide for the Development, Conservation and Utilization of Forests, Proclamation No. 542/2007
- A Proclamation to Provide for the Establishment of the Ethiopian Wildlife Development and Conservation Authority, Proclamation No. 575/2008
- A Regulation to Provide Wildlife Development, Conservation, and Utilization, Regulation No. 163/2008
- The Awash National Park Establishment Order No. 54/1969
- The Simien National Park Establishment Order No. 59/1970

The National Policy on Biodiversity Conservation and Research recognizes the economic importance of Ethiopia's genetic resources, whether domestic or wild. Its basic aim is to ensure in situ and ex situ conservation of Ethiopia's biodiversity through research, collaborative management, community participation, etc.

Most important to in situ conservation is the CBD: Article 8. In Situ Conservation: "Each Contracting Party shall, as far as possible and as appropriate:

- Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
- Develop, where necessary, guidelines for the selection, establishment, and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
- Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;

- Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings;
- Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
- Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies.”

The goal of the Ethiopian Biodiversity Strategy and Action Plan is that “Effective systems are established that ensure the conservation and sustainable use of Ethiopia's biodiversity, that provide for the equitable sharing of the costs and benefits arising therefrom, and that contribute to the well-being and security of the nation.” Ethiopia's biodiversity conservation priorities are found in the strategic objectives of the plan:

- Representative examples of Ethiopia's remaining ecosystems are conserved through a network of effectively managed protected areas;
- By 2020, all remaining natural ecosystems outside the protected areas are under sustainable use management;
- The costs and benefits of biodiversity conservation are equitably shared through a range of public, private, community/community-based organization and NGO partnerships for protected area management and for sustainable use and marketing of biodiversity;
- The rich agro-biodiversity of Ethiopia is effectively conserved through a mix of in situ and ex situ programs in protected areas with a view to furthering protection of these areas;
- Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies.”

The policies and proclamations described above do not provide specifics on public-private partnerships that may be necessary for their implementation. Particularly, explicit legal provisions for co-governance systems, categorization of PAs, financing mechanisms, and resettlement issues for community members who settled within protected areas in the recent past, should be addressed in order to effectively manage PAs of Ethiopia.

5.6 KEY TRENDS, INCLUDING IMPACT OF DEVELOPMENT PROJECTS

This section will include a review, by major ecosystem, of existing information on the impacts of internationally and locally funded major development projects on tropical forest and biological diversity resources.

5.6.1 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS AND ENVIRONMENTAL PROTECTION IMPLEMENTATION

The responsibility for development of the ESIA falls upon the proponent, who then must present the ESIA as a prerequisite for obtaining a business license in Ethiopia (Gubena 2016).

While the expectations for when and what is to be included in an ESIA are relatively clear and well known, the required consultations with the regional offices and monitoring and oversight are severely lacking for several reasons. First, projects that are funded by the federal government of Ethiopia, namely construction and large-scale industrial development, fall within the mandate of the federal MEFCC. The Authority is responsible for monitoring of these projects, but logistics and a lack of funding hinder its ability to conduct site visits and oversight. On smaller projects or ones that are the responsibilities of regions, woredas, or municipalities, the Zonal Protection Office (or similar entity depending on the region) is involved primarily in checking that business permits are in place and that the ESIA have been drafted. This is solidified by the

Investment Proclamation 769/2012 and 849/2014 per the requirement for investors to file ESIA paperwork. While these offices are responsible for field oversight through field visits and frequent monitoring of the environmental management plan, these offices lack the ability to conduct the monitoring because computers, vehicles, and adequate facilities are not available. When site visits are conducted, the officers use public transportation, so with the difficult commute and a lack of per diem reimbursement, the officers are only able to visit projects within close proximity of the office location.

Due to lack of funding and logistic support, the ESIA process is not being tracked at the project level; so projects are essentially proceeding unmonitored. Additionally, as reported by zonal officials, the stakeholder consultation process is often inadequate for the purposes of the ESIA. This is even the case with large federal projects, where instances of major environmental harms are documented, such as borrow pit extraction that led to major slope failure, and dumping of construction materials with no levelling before the project activities closed. The deposition of overburden on community lands is also not discussed widely and the community lacks the understanding of best practices to require compensation for this use of their lands (e.g., they do not request the overburden be buried, levelled, and the topsoil replaced). When the ESIA process is not complete, there are numerous risks to the environment, depending on the type of project. Other harms when ESIA procedures are not enforced include poaching by construction workers, deforestation and unnecessary removal of vegetation during construction, landslides due to borrow pit, road cuts that are unstabilized, erosion into rivers, inappropriate sourcing of materials in river beds, and air and noise pollution.

5.6.2 ENERGY

The Ethiopian energy sector is currently dominated by government owned hydropower schemes but with the assistance of Power Africa, the GoE is promoting diversified development by independent power producers. With the opening of private investment, the sector is diversifying into solar, geothermal, and wind. Additionally, small privately owned hydropower schemes are also being developed.

The Aysha wind farm is being constructed in the Somali Region; it will provide 120 megawatts of power with 80 turbines. Gibe I, II, and III on the Gibe River in Oromia as well as the Grand Renaissance dams are major investments in the hydropower sectors. Three other dams are planned along the Blue Nile River before the river enters the area of the Grand Renaissance dam (Figure 16).



Figure 16. Blue Nile Falls, a resource divided between being an ecotourism destination and an important resource for hydropower generation.

The GoE promotes the cheap cost of electricity (3 cents per hour) as a major benefit of investment in Ethiopia. Electrification is also a major strategy for economic growth in rural areas. Therefore, energy production has taken a front and center role in economic growth of Ethiopia. As such, private enterprise is , but many of the safeguards and systems are not in place to manage and oversee the investment This is why the ESIA process, as noted in other sections, is important of hydropower development without being completed, in some egregious cases, the design of the project not even completed before construction. This practice is an extreme threat to conservation of Ethiopia's resources clean energy projects transmission lines

environmental resources. Although the energy production itself may be clean, the construction process surely is not.

While development in the energy sector has been dominated by green energy projects, the reality is that household energy production in rural areas almost exclusively relies on fuelwood. Plantations and woodlots produce nearly 85 percent of the fuel needs of rural households (Lemenih and Kassa, 2014). The lack of reliable rural energy supplies is a significant challenge for biodiversity and forest conservation, which is being addressed in part through improvements to link rural populations to the grid and small-scale energy generation (e.g., household solar units).

5.6.3 INDUSTRIALIZATION AND PRIVATE ENTERPRISE

The Minister of Foreign Affairs announced at a meeting of New Zealand and Australian investors that the objective of the GoE is to increase industrial investment in Ethiopia by 25 percent over each of the next few years. As such, there are a number of industrial growth projects that are strategic targets for the country. Ethiopia across nearly all sectors has well-developed strategies for addressing growth in that sector guided by an overarching GTPII. However, an under-resourced Environmental Protection Authority, and limited capacity to manage private investment sustainably means Ethiopia's resources could quickly be decimated in the name of economic growth rather than being sustainably utilized to increase the wealth and power of its citizens.

GTPII focuses on economic growth in the manufacturing, textile, and agricultural sectors. GTP-I chased a 11-15 percent development goal between 2010–2015 by largely addressing production of small holders and pastoralists as well as strengthening markets, engaging the private sector, and promoting irrigation. The Agriculture Transformation Agency (ATA) establishment was critical in meeting targets. GTPII is working to transform the economy, which relies mostly on agriculture. The agriculture sector receives less focus in GTPII, decreasing from 40 to 26 percent of the GDP, and industry is expected to increase by 18 percent. *African Business Magazine* estimates that foreign direct investment has gone from 1 million USD in 2008 to 2.5 billion USD in 2016. Tax incentives are generous and generally act as an incentive toward environmental degradation rather than preservation.

New industrial parks under construction include Bole Lemi Industrial Park Phase 1-2, Kilinto Industrial Park, Kombolcha textile cluster, Dire Dawa Special Economic Zone, Eastern Industry Zone, and the Ethio-Turkish Industry Zone. A total of 12 parks are being built with the Hawassa Industrial Park nearly complete (FIGURE 17). Agro-processing will be added to Bahkar in Tigray, Bure in Amhara, Ziyaw in Oromia, and Sidama in SNNPR with another 13



Figure 17. New Hawassa Industrial Park on the outskirts of Hawassa expected to generate billions USD in revenue.



Figure 18. Multiple generators pump water from the Awash River to flower fields in the Rift Valley.

identified. No feasibility study has been completed but processing will target sesame, livestock, spices, fish, and honey. Previously, only 12.4 percent of the GDP was industrial partially because of the lack of local financial and managerial capacity. The feasibility study will address waste and identify how to cross-use wastes for stated purposes. Waste handling at scale could benefit from co-locating multiple facilities. The agroindustry has been plagued by the lack of raw materials and the scarcity of processing facilities. Seven million hectares are set aside in the GTPII for industrial development.

Private investment has been encouraged by the government through equity ownership of joint ventures with nationals; two to eight years of income tax exemption; loss carry forward; exemption from payment of duty; vouchers; tax holidays; export incentives; duty-draw back schemes; bonded manufacturing warehouses; export credit guarantees; repatriation of dividends, principal, and interest payments in external loans; and the right to employ expatriate experts. Additionally, the following technical institutes have been developed for the textile industry, leather industry, metal industry, chemical and construction inputs industry, meat and dairy industry, food and beverage industry and pharmaceutical industry, a national kaizen institution (funded by JICA), and industrial zone development corporation.

FLOWER FIELD EXPANSION

The Central Rift Valley of Ethiopia has faced increasing numbers of dry days annually and increased intensity in rainfall events, creating crop-moisture stress during the growing season, along with significant variation in the length of growing seasons from 1977 to 2007. Climactic predictions suggest that rainfall will increase outside growing seasons and decrease during the growing season, further reducing the projected growing season (Kassie, 2014). Flowers are very profitable crops, but they are input-intensive (requiring pesticides and fertilizer), and flower farms in Ethiopia do not follow international standards. Flower farms are very water-intensive, and Ethiopian flower farms do not always use efficient irrigation, resulting in strain on rivers (Figure 18). The inputs could contaminate water sources. The presence of flower farms in Ethiopia has also been connected to a shortage of pollinating bees, food produce, and forest cover. The primary flower-growing region is along the Awash River.

COTTON AND TEXTILES AS AN EXAMPLE OF INDUSTRIALIZATION STRATEGIES

Ethiopia's Ministry of Agriculture and Natural Resources has developed a National Cotton Development Strategy in cooperation with the Ethiopian Textile Industry Development Institute. There has also been investment in industrial parks specifically designed for the trade. Cotton is a readily available raw material as Ethiopia; Ethiopia is second in mill usage in Africa, being outpaced by Egypt. Industrial hubs are being developed at Addis, Hawassa, Kombolcha, Mekele, Diredawa, and Adama. Large-scale producers are meeting 80 percent of the demand. The total cultivated area in Ethiopia is 100,000 hectares with smallholders farming 40,000 hectares. Water for cotton farming is 30 percent from irrigation and 70 percent from rain. The main aim is increasing productivity of the land under usage rather than expanding the land under production (Shiferwa, 2016).



Figure 19. Lake Hawassa fishermen's boat launch.

RIFT VALLEY LAKES WATER QUALITY AND DEVELOPMENT

The Eastern Rift Valley lake system is an important productive aquatic ecosystem for Ethiopia and has taken an increasingly important role in economic growth of the country while at the same time being threatened by development. The lakes are productive for fish, flood mitigation, irrigation, and water storage and harbor biodiversity in fish and bird populations. The growing rift valley populations pose a threat, especially if growth projections based on the country's aggressive

investment strategy are realized. Broadly, threats facing these lakes systems are shoreline alteration, eutrophication, sedimentation, habitat change, invasive species, climate change, biodiversity changes, and degradation of watersheds.

Lake Hawassa was the subject of a detailed site visit as part of the assessment. It averages 11 meters deep and covers an area of 88–90 square kilometers, making it one of the smallest in the Rift Valley (Gildre and Wildemariam. 2015.) Sitting on the edge of Hawassa Town, the lake still serves as a wildlife haven for Nile monitor lizard, otter, and hippopotamus, as well as numerous migratory and resident bird species. Fish species include the Nile tilapia, African sharp-tooth catfish, African big barb, and small barb.

While Lake Hawassa can serve as a representative of other lake systems across the Rift Valley, it also has some unique characteristics. Hawassa is one of the fastest growing cities in Ethiopia, and therefore population growth creates demand for water supply, expanded development along the shoreline, and additional storm and sanitation discharge. Hawassa is also the center for the new Hawassa Industrial Park, which is expected to create 60,000 jobs in the area, virtually assuring that the city will continue to grow. These businesses, and textiles in particular, require water for processing and can also discharge contaminated wastes if not treated properly.

The drivers of industrial pollution are also challenging to address, as the industries themselves are diverse and likely to grow in the upcoming decade. Currently, there are large beer manufacturing facilities, a referral hospital that directly discharges to the lake, textile processors, and a soap factory..

SOS Sahel conducted the study “*Enhancing Climate Resilience, Food Nutrition Security in the Lake Hawassa Ecosystem*” with the objectives of identifying source pollutants, routes of pollution to the lake, adverse impacts, mitigation measures, and intervention strategies (SOS Sahel 2015).

Following the baseline study of the lakes status, SOS Sahel, funded by Irish AID, is conducting titled “Improving smallholder livelihood and resilience through climate smart agriculture economic development.” The interventions do not just target the direct threats to the lake but also address the drivers for degradation including poor land management, erosion, and overall, resilience to climate change. The variability, intensity, and frequency of rainfall, combined with the loss of tree cover and expansion of agriculture has resulted in degraded hillsides which quickly shed rainfall, causing erosion and sedimentation of Lake Hawassa as well as other Rift Valley lakes. Sediment deposition is causing the lake to become shallower, changing temperature regimes. SOS Sahel is encouraging conversion of traditional agriculture near the lakeshore to fruit tree planting, creating a buffer strip around the lake to catch pollution and sediment from the hillsides and reducing direct input of fertilizer and pesticide to the lake. These interventions serve to retain water and prevent erosion, leading to higher security against floods and landslides.

5.6.4 REFUGEES AND INTERNALLY DISPLACE PEOPLE

The refugee population is expected to cross 1 million this year as conflict continues in South Sudan. On the other side of the country, Somali refugees are also fleeing and residing for long periods in Ethiopia. Refugee populations pose a dramatic and dire threat to biodiversity and forests due to the needs of a large and concentrated population with few coping resources. Refugee camps and settlements historically have led to widespread deforestation for heating and cooking fuel surrounding the camps. Additionally, poaching is an increasing problem, as wildlife may be used as supplementary protein sources and at times for income generation. Camps also can promote conflict between the resident communities and the camp inhabitants as resources become scarcer and cultural differences in resource utilization emerge.

Both donors and government have contributed to response to the crisis but United Nations High Commission for Refugees (UNHCR) stated that it has had to take shortcuts in WASH interventions (Teshome 2016), which threatens water quality of rivers, streams, and lakes around refugee locations.

The Intergovernmental Authority on Development and WB has signed a USD5 million agreement to assist communities hosting refugees, which will among other things enhance the environmental management for

host communities. CIFOR is developing a research proposal to examine evidence based coping mechanisms to identify intervention options.

The unusually strong El Niño disrupted rains in 2016, with unusually dry conditions in the northeast of the country, and somewhat drier to somewhat wetter conditions in the rest of the country. This is the same region that was affected in the infamous droughts of the 1970s and 80s. These highlands are home to 80 percent of the people, 66 percent of Ethiopia’s ruminants, and 90 percent of the cropland. Thus, due to the heavy use, 76 percent of the highlands has been “significantly or seriously eroded” (Dejene 1990). The recent economic growth has also resulted in the expansion of agriculture, likely exacerbating existing vulnerabilities.

The failure of the spring rains, and heavy rainfall and flooding in April and May, compounded with several previous lackluster rainy seasons, resulted in crop failures and livestock herds being trapped in desert pastures. Hesitance of the local government to request aid and distraction with conflict-related humanitarian disasters in the Middle East has resulted in delayed foreign aid. Underlying causes of the drought include substantial preexisting environmental degradation and increased desertification due to unsustainable land have decreased the environments resiliency to drought, while annual rainfall has decreased.

5.6.5 ECOTOURISM

The Ministry of Culture and Tourism stated that 3.4 billion ETB came from tourism in 2015 with a considerable rise in the number of tourists visiting. That number is expected to continue to rise as mainland Chinese explore Ethiopia as well as US and European visitors with the objective of 25 percent being from tourism and air. Diaspora investment and promotion also serves an important role in development of the sector. The goal is to bring 5 million visitors to Ethiopia annually, beginning with the launch of the new platform: Ethiopia Land of Origins.

While cultural activities are plentiful, the environmental tourism resources are less developed. Sof Omer, Bale and the blue Nile falls are some of the most common ecotourism resources. The GTP II puts additional emphasis on tourism development and the Ministry of tourism and culture and the Ethiopian Tourism Organization has been implementing a strategy for 2 years to promote the country through the Tourism Policy and Strategy. The others, with the private investment historically limited and the National Parks underfunded, have historically seen little development for tourism. That circumstance has changed with the concessions for development being given in some park areas. However, in others, the park size have been slashed as permits for resource extraction have been distributed. Additionally, the sector is challenge by a lack of quality guides with specialties across the ecotourism market. Degrees in tourism is being offered at 8 universities as well as additional private colleges, technical, and vocational institutes. The development bank of Ethiopia is also providing loans toward tourism development.

5.6.6 CLIMATE CHANGE AND HYDROGEOLOGIC CYCLE

Ethiopia, home to 90 million people, is one of the world’s most drought-prone countries. The country faces numerous development challenges that exacerbate its vulnerability to climate change, including population growth, high levels of food insecurity, and ongoing conflicts over natural resources. Chronic food insecurity affects 10 percent of the population, even in years with sufficient rains. Roughly two-thirds of the population earns less than \$2 per day and access to basic services is limited. Rainfed agriculture contributes nearly half of national GDP and is the mainstay of livelihoods for 85 percent of the population. These rural livelihood systems – crop cultivation, pastoralism and agro-pastoralism – are highly sensitive to climate variability and change. Food insecurity patterns are linked to seasonal rainfall patterns, with hunger trends declining significantly after the rainy seasons. Climate variability already negatively impacts livelihoods and this is likely to continue. Drought is the single most destructive climate-related natural hazard in Ethiopia. Estimates suggest climate change may reduce Ethiopia’s GDP up to 10 percent by 2045, primarily through impacts on agricultural productivity (Gashaw, 2014). These changes also hamper economic activity and aggravate existing social and economic problems.

Global and country-level population growth driving increases in greenhouse gas emissions are changing the climate of Ethiopia. Higher temperatures, erratic rainfall, and more frequent and intense extreme events have been observed over the past several decades. Further warming will continue over the next century at unprecedented rates stressing Ethiopia's adaptive capacity to withstand and thrive under this changing climate. They will continue to face significant drought and flood conditions, threatening the livelihoods, health, and economy of this resource rich country.

The cloud forests in Ethiopia are some of the last remnant cloud forests in the country as such, represent an important carbon storage, serve as reserves for high endemism of coffee and other species, and contribute to the hydrogeological cycle. But these forests are threatened by expanded development for agriculture, livestock, and business expansion. However, studies suggest that sustainable use of these forests rather than strict conservation may yield the greatest benefits for local populations while maintain the integrity of the forests (Reichhuber and Requate, 2007). The high moisture in the cloud forest promotes growth of high biomass and biodiversity of epiphytes, but population growth and search for areas for livestock grazing and charcoaling have already created losses in these areas. Hydrologically, cloud forests are an essential component of the hydrological cycle as the tree crowns intercept the wind-driven cloud moisture, part of which then drips to the ground. The fog drip occurs when water droplets from the fog adhere to the needles or leaves of trees or other structures and drop to the ground, thus contributing to groundwater cycling. Effectively, fog drip can double precipitation in dry seasons and increased by about 10 percent in the wet seasons. In a study of tropical dams, the total area covered by cloud forests was estimated at only 5 percent of the land cover but the cloud forests contributed to 50 percent of the water infiltration in the watershed (Saenz, 2013). While other types of forests and plantations would also capture water, the specialization of cloud forests to capture fog drip and the density of biological growth contribute to their ability to capture and filter water into the aquifer. Climate change models indicate that low-altitude cloudiness will be reduced, thus impacting the hydrological cycle. These changes could impact water availability for communities downstream and also change flow regimes in rivers used for generation of hydroelectric power, an important development strategy for the GOE.

6. ENVIRONMENTAL DRIVERS AND THREATS

This section documents direct threats to the environment as they relate to USAID programming, biodiversity, and tropical forests. Environmental threats are defined as “threats to processes and actions that may diminish biological diversity, including conversion of natural habitats; overexploitation of valuable species; introduction of invasive species; and environmental change, such as climate change, desertification, and pollution” (USAID 2015a). It also documents the drivers (i.e., root causes) of environmental threats for the purposes of FAA 118/119 analysis. The threats and root causes were identified based on reviewed literature, stakeholder consultations, and the expertise of the Assessment Team and are intended to capture the recent, current, and reasonably foreseeable issues relevant to USAID’s 5- to 7-year planning timeline. The threats and drivers include those that are ecological (e.g., climate change, fire, pests), related to human use (e.g., agriculture), or institutional (e.g., failed policy, lack of enforcement) or transboundary issues.

Table 4 (below) defines the drivers of environmental degradation for each of the direct threats identified. This specification of drivers is based on the overall analysis of threats, stakeholder consultations, and documents reviewed.

TABLE 4. DRIVERS AND DIRECT THREATS TO BIODIVERSITY AND TROPICAL FORESTS

Driver	Threat	General Location
A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	E.g., protected areas, forests, peri-urban areas, cities and villages, Rift Valley, highlands, pastoralists/lowland areas, aquatic systems (general), agricultural systems ('productive Ethiopia')
Water extraction/diversion with limited regulations or sustainability planning for industrial, agricultural, energy use	<ul style="list-style-type: none"> • Salinization of irrigated lands • Drying of wetlands • Reduced river baseflow • Impaired water availability/access • Reduced aquifer recharge 	Agricultural systems Rift Valley Aquatic systems Highlands Peri-urban areas Cities and villages
Lack of fertile farmland for those seeking farming as a livelihood Associated drivers: <ul style="list-style-type: none"> • Lack of alternative livelihoods • Youth bulge • Plot fragmentation • Inability to investment in inputs • Poverty • Food insecurity • Low productivity 	<ul style="list-style-type: none"> • Environmental degradation – loss of soil fertility/carbon, loss of biomass • Deforestation/range degradation • Agricultural encroachment • Habitat loss • Burning/fires • Fuelwood gathering/charcoal production 	Agricultural systems Highlands Peri-urban areas Protected areas
Inappropriate siting of settlements (refugees, government resettlements, villagization of	<ul style="list-style-type: none"> • Poaching • Habitat loss 	Protected areas Forests

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Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	Threat A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	General Location E.g., protected areas, forests, peri-urban areas, cities and villages, Rift Valley, highlands, pastoralists/lowland areas, aquatic systems (general), agricultural systems ('productive Ethiopia')
pastoralists) Associated drivers: <ul style="list-style-type: none"> • Poor rangeland management • Land clearing • Food insecurity 	<ul style="list-style-type: none"> • Fuelwood gathering/charcoal production • Exploitative forest resource use - cutting, brush clearing • Zoonotic disease • Deforestation/ range degradation • Agricultural encroachment • Overgrazing in sensitive areas • Reduced aquifer recharge 	Peri-urban areas Pastoralists/lowland areas Highlands
Rapid population growth (Expansion of peri-urban areas and urbanization) Associated drivers: <ul style="list-style-type: none"> • Poverty • Shoreline alteration • Food insecurity • Lack of accessible financial mechanisms for investment and savings • Lack of business opportunities and alternative livelihoods • Limited support for small- and medium-sized business, especially green business 	<ul style="list-style-type: none"> • Impaired water availability/access • Agricultural encroachment • Deforestation/range degradation • Improper solid waste management • Fuelwood gathering/charcoal production • Exploitative forest resource use - cutting, brush clearing • Zoonotic disease • Reduced aquifer recharge • Air and water pollution 	Cities and villages Peri-urban areas Aquatic systems Rift Valley
Industry development/mechanized agriculture in sensitive environments Associated drivers: <ul style="list-style-type: none"> • Mono-cropping/non-rotational farming • Greenfield development • Industrial air emissions – generators • Competition over land use • Shoreline alteration 	<ul style="list-style-type: none"> • Air and water pollution • Agricultural pesticide and fertilizer run-off • Loss of soil fertility • Greenhouse gas emissions • Reduced aquifer recharge • Salinization 	Rift Valley Highlands Peri-urban areas Agricultural systems
Unsustainable use of pastoralist resources and	<ul style="list-style-type: none"> • Overgrazing 	Pastoralists/lowland

TABLE 4. DRIVERS AND DIRECT THREATS TO BIODIVERSITY AND TROPICAL FORESTS

Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	Threat A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	General Location E.g., protected areas, forests, peri-urban areas, cities and villages, Rift Valley, highlands, pastoralists/lowland areas, aquatic systems (general), agricultural systems ('productive Ethiopia')
limitations on alternative livelihoods for pastoralists Associated drivers: <ul style="list-style-type: none"> • Poor rangeland management • Poverty • Limited modern financing and banking options • Cultural view of cattle as status, insurance, banking assets • Food insecurity • Lack of inclusive management • Lack of alternative feed/fodder sources or sustainable business around fodder production • Increase demand for animal proteins 	<ul style="list-style-type: none"> • Encroachment/grazing in protected areas • Environmental degradation – loss of soil fertility/carbon, loss of biomass • Deforestation/range degradation • Habitat loss • Burning/fires • Invasive species 	areas Protected areas
Climate Change	<ul style="list-style-type: none"> • Erratic rainfall • Changing rainfall patterns • Altered agro-ecological zones • Inadequate stormwater management 	Rift Valley Highlands Pastoralists/lowland areas Aquatic systems Agricultural systems Cities and villages Peri-urban areas
Weak environmental policies/regulation enforcement Associated drivers: <ul style="list-style-type: none"> • Too many fishing permits • No or ineffective ESIA use and monitoring • Lack of attention to climate risk • Unmarked boundaries and unenforced regulations in protected areas/sensitive environments • Weak institutions • Lack of inclusive management • Limited baseline data on resources 	<ul style="list-style-type: none"> • Overfishing • Zoonotic Disease • Reduced water availability/access and quality • Land expansion/encroachment • Deforestation/range degradation • Air and water pollution • Agricultural pesticide and fertilizer run-off • Habitat loss • Drying/filling of wetlands 	Rift Valley Aquatic systems Highlands Protected areas Agricultural systems Forests

TABLE 4. DRIVERS AND DIRECT THREATS TO BIODIVERSITY AND TROPICAL FORESTS

Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	Threat A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	General Location E.g., protected areas, forests, peri-urban areas, cities and villages, Rift Valley, highlands, pastoralists/lowland areas, aquatic systems (general), agricultural systems ('productive Ethiopia')
	<ul style="list-style-type: none"> Improper solid waste management 	
Land tenure disputes and ambiguous land use rights Associated drivers: <ul style="list-style-type: none"> Lack of inclusive management Limited baseline data on resources Weak institutions 	<ul style="list-style-type: none"> Encroachment/grazing in protected areas Drying/filling of wetlands Habitat loss Deforestation/range degradation Environmental degradation – loss of soil fertility/carbon, loss of biomass 	Highlands Protected areas Rift Valley Agricultural systems Forests Pastoralists/lowland areas
Greenhouse gas emissions – burning, charcoaling, fuelwood use, industry, livestock methane Associated drivers: <ul style="list-style-type: none"> Lack of affordable electricity Lack of energy options 	<ul style="list-style-type: none"> Climate change Changes in disease distribution / vectors for humans, livestock, crops, and flora and fauna 	Rift Valley Cities and villages Peri-urban areas Pastoralists/lowland areas

7. NECESSARY ACTIONS AND OPPORTUNITIES FOR CONSERVATION AND SUSTAINABLE DEVELOPMENT

This section addresses FAAs 118(e)(1) and 119(d)(1) by describing the actions necessary to conserve tropical forests and biodiversity. For long-term, sustainable results, the root causes of the direct threats (from Section 5) must be addressed in terms of actions that:

- Conserve, restore, and sustainably manage tropical forests,
- Preserve and restore biological diversity, and
- Ensure sustainable management of natural resources critical to the success of USAID programming.

Table 5 lists the specific actions that can address each of the root causes identified. The actions were developed based on fieldwork and observations, a desk review of literature, and input from stakeholders.

Based on this analysis, **the following five actions were determined to be necessary for addressing environmental threats in Ethiopia** (see Table 5). These are strategic recommendations intended to provide general guidance as the mission prepares its CDCS. **Action on these recommendations—by USAID, the**

GoE, or other parties—could significantly improve sustainable development in Ethiopia and, in doing so, promote the conservation of biodiversity and tropical forests.

The Assessment Team considered the following when developing strategic actions necessary per guidance from the USAID Forestry and Biodiversity Office policy (USAID 2016c):

- Develop actions necessary that address drivers to threats, but actions necessary can also address the primary/direct threats.
- Use relevant government documents to identify and coordinate a set of necessary actions.
- During key informant interviews, ask experts about their views on the actions necessary to conserve biodiversity and consider how many respondents note the action as a need.
- Develop general and strategic actions necessary rather than actions that are highly specific and detailed.

TABLE 5. DRIVERS AND ACTIONS NECESSARY

Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	Associated Threats A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	Actions Necessary Actions necessary to conserve biodiversity should address the drivers of the direct threats.
Water extraction/diversion with limited regulations or sustainability planning for industrial, agriculture, energy use	<ul style="list-style-type: none"> • Salinization of irrigated lands • Drying of wetlands • Reduced river baseflow • Impaired water availability/access • Reduced aquifer recharge 	<p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Specific Action under IR 1.4 Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses.</p> <p>Specific Action under IR 1.5 Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides.</p>
Lack of fertile farmland for those seeking farming as a livelihood Associated drivers: <ul style="list-style-type: none"> • Lack of alternative livelihoods • Youth bulge • Plot fragmentation • Inability to investment in inputs • Poverty • Food insecurity • Low productivity 	<ul style="list-style-type: none"> • Environmental degradation – loss of soil fertility/carbon, loss of biomass • Deforestation/range degradation • Agricultural encroachment • Habitat loss • Burning/fires • Fuelwood gathering/Charcoal production 	<p>Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services.</p> <p>Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p> <p>Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.</p> <p>Specific Action under IR 1.1 Contribute to efforts for the certification of lands not only for traditional agricultural activities but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.</p>

TABLE 5. DRIVERS AND ACTIONS NECESSARY

<p>Driver</p> <p>A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.</p>	<p>Associated Threats</p> <p>A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.</p>	<p>Actions Necessary</p> <p>Actions necessary to conserve biodiversity should address the drivers of the direct threats.</p>
<p>Inappropriate siting of settlements (refugees, government resettlements, villagization of pastoralists) Associated drivers:</p> <ul style="list-style-type: none"> • Poor rangeland management • Land clearing • Food insecurity 	<ul style="list-style-type: none"> • Poaching • Habitat Loss • Fuelwood gathering/Charcoal production • Exploitative forest resource use - cutting, brush clearing • Zoonotic Disease • Deforestation/ range degradation • Agricultural encroachment • Overgrazing in sensitive areas • Reduced aquifer recharge 	<p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.</p> <p>Specific Action under IR 1.2 Contribute to ongoing efforts to protect and manage protected areas and surrounding forests as reserves of biodiversity, working with stakeholders using PFM/PRM and CBNRM.</p>
<p>Rapid population growth (Expansion of peri-urban areas and urbanization) Associated drivers:</p> <ul style="list-style-type: none"> • Poverty • Shoreline alteration • Food insecurity • Lack of accessible financial mechanisms for investment and savings. • Lack of business opportunities and alternative livelihoods • Limited support for small and medium sized business, especially 'green' business 	<ul style="list-style-type: none"> • Impaired water availability/access • Agricultural encroachment • Deforestation/range degradation • Improper solid waste management • Fuelwood gathering/Charcoal production • Exploitative forest resource use - cutting, brush clearing • Zoonotic Disease • Reduced aquifer recharge • Air and water pollution 	<p>Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p> <p>Specific Action under IR 1.3 Provide DCA guarantees for ecotourism/green investments, which traditional lenders may consider risky.</p> <p>Specific Action under IR 2.2 Improve handling of liquid and solid waste management system and stormwater, particularly to protect ecology of receiving waters and assure sanitary landfill capacity.</p> <p>Specific Action under IR 2.3 Continue to support family planning services that directly address population growth threats and indirectly protect biodiversity and conserve forests.</p> <p>Specific Action under IR 3.2 Invest in developing a climate-smart work force to support CRGE objectives, particularly those that can work at the zonal and woreda level.</p>
<p>Industry development/mechanized agriculture in sensitive environments Associated drivers:</p> <ul style="list-style-type: none"> • Mono-cropping/non-rotational farming • Greenfield development • Industrial air emissions – generators • Competition over land use • Shoreline alteration 	<ul style="list-style-type: none"> • Air and water pollution • Agricultural pesticide and fertilizer run-off • Loss of soil fertility • Greenhouse gas emissions • Reduced aquifer recharge • Salinization 	<p>Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation.</p> <p>Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate.</p> <p>Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p> <p>Specific Action under SO Support capacity building, training, and logistics for enforcement of ESIA and</p>

TABLE 5. DRIVERS AND ACTIONS NECESSARY

Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	Associated Threats A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	Actions Necessary Actions necessary to conserve biodiversity should address the drivers of the direct threats.
		environmental management plan monitoring at the zonal and woreda level, as ESIA follow-up and review are currently minimal. Specific Action under IR 1.5 Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides.
Unsustainable use of pastoralists resources and limitations on alternative livelihoods for pastoralists Associated drivers: <ul style="list-style-type: none"> • Poor rangeland management • Poverty • Limited modern financing and banking options • Cultural view of cattle as status, insurance, banking assets • Food insecurity • Lack of inclusive management • Lack of alternative feed/fodder sources or sustainable business around fodder production • Increase demand for animal proteins 	<ul style="list-style-type: none"> • Overgrazing • Encroachment/grazing in protected areas • Environmental degradation – loss of soil fertility/carbon, loss of biomass • Deforestation/range degradation • Habitat loss • Burning/fires • Invasive species 	Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate. Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services. Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources. Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.
Climate Change	<ul style="list-style-type: none"> • Erratic rainfall • Changing rainfall patterns • Altered agro-ecological zones • Inadequate stormwater management 	Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation. Specific Action under IR 1.4 Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses. Specific Action under IR 3.2 Invest in developing a climate-smart work force to support CRGE objectives, particularly those that can work at the zonal and woreda level.
Weak environmental policies/regulation enforcement Associated drivers: <ul style="list-style-type: none"> • Too many fishing permits • No or ineffective ESIA use and monitoring 	<ul style="list-style-type: none"> • Overfishing • Zoonotic disease • Reduced water availability/access and quality • Land expansion/encroachment • Deforestation/range 	Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate. Specific Action under SO Support capacity building, training, and logistics for enforcement of ESIA and environmental management plan monitoring at the zonal

TABLE 5. DRIVERS AND ACTIONS NECESSARY

Driver A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.	Associated Threats A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.	Actions Necessary Actions necessary to conserve biodiversity should address the drivers of the direct threats.
<ul style="list-style-type: none"> • Lack of attention to climate risk • Unmarked boundaries and unenforced regulations in protected areas/sensitive environments • Weak institutions • Lack of inclusive management • Limited baseline data on resources 	degradation <ul style="list-style-type: none"> • Air and water pollution • Agricultural pesticide and fertilizer run-off • Habitat loss • Drying/filling of wetlands • Improper solid waste management 	and woreda level, as ESIA follow-up and review are currently minimal Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands. Specific Action under IR 1.2 Contribute to ongoing efforts to protect and manage protected areas and surrounding forests as reserves of biodiversity, working with stakeholders using PFM/PRM and CBNRM. Specific Action under IR 1.5 Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides. Specific Action under IR 2.2 Improve handling of liquid and solid waste management system and stormwater, particularly to protect ecology of receiving waters and assure sanitary landfill capacity.
Land tenure disputes and ambiguous land use rights Associated drivers: <ul style="list-style-type: none"> • Lack of inclusive management • Limited baseline data on resources • Weak institutions 	<ul style="list-style-type: none"> • Encroachment/grazing in protected areas • Drying/filling of wetlands • Habitat loss • Deforestation/range degradation • Environmental degradation – loss of soil fertility/carbon, loss of biomass 	Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate. Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services. Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources. Specific Action under IR 1.1 Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.
Greenhouse gas emissions – burning, charcoaling, fuelwood use, industry, livestock methane Associated drivers: <ul style="list-style-type: none"> • Lack of affordable electricity • Lack of energy options 	<ul style="list-style-type: none"> • Climate change • Changes in disease distribution / vectors for humans, livestock, crops, and flora and fauna 	Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation. Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions. Specific Action under IR 1.3 Provide development

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<p>Driver</p> <p>A driver is the ultimate factor, usually social, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats.</p>	<p>Associated Threats</p> <p>A threat is a proximate human activity or process that explicitly causes degradation or loss of biodiversity.</p>	<p>Actions Necessary</p> <p>Actions necessary to conserve biodiversity should address the drivers of the direct threats.</p>
		<p>credit authority (DCA) guarantees for ecotourism/green investments, which traditional lenders may consider risky.</p> <p>Specific Action under IR 1.4 Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses.</p>

8. LINKAGES TO USAID STRATEGY AND PROGRAMS

This section describes the extent to which the existing programs and potential new activities meet (or do not meet) those necessary actions for conservation (required under the sec. 118(e)/119(d) mandatory analysis) environmental management, and addressing climate change. The Assessment Team specifically analyzed new initiatives, USAID Forward, and procurement reforms. This section also includes recommendations to mitigate the impacts of proposed activities, including how to better integrate environmental management across USAID/Ethiopia’s strategic objectives.

8.1 EXTENT TO WHICH ACTIONS PROPOSED BY USAID MEET THE NEEDS

This section addresses FAAs 118(e)(2) and 119(d)(2) by describing “the extent to which the actions proposed for support by the Agency meet the needs thus identified.”

Table 7 below suggests which of the **current and proposed** programs at USAID/Ethiopia (i.e., actions) are contributing, or could contribute, to the key recommendations.

TABLE 6. EXTENT TO WHICH NECESSARY ACTIONS ARE SUPPORTED BY USAID/ETHIOPIA PROGRAMS

○ = OPPORTUNITY FOR USAID, ACTIVITIES ARE NOT CURRENTLY MEETING THE NECESSARY ACTION, BUT COULD IN FUTURE PROGRAMS

+ = EXISTING PROGRAMS AND POTENTIAL NEW ACTIVITIES MEET THE NECESSARY ACTION

STRATEGIC RECOMMENDATIONS	Agriculture, Food Security, and Nutrition	Democracy and Human Rights	Economic Growth and Trade	Education	Global Climate Change	Gender Equality and Women's Empowerment	Global Health	Power Africa	Water	Humanitarian Response
1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation.	+		+	○	+		○		+	
2. Provide capacity building, institutional support, and logistics to help regional/local authorities implement their mandate.	+	+	+	○	○			○	○	
3. Focus on issues of land tenure, land certification, and land use planning, particularly the contribution to land certification and mapping objectives that is inclusive and appropriately values rangelands, forests, and wetlands and assigns value to non-extractive use.	+	+	○					○	+	
4. Support economic diversification through support to small and medium enterprise.	+		+			+				
5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.	+	+	+		+			○	○	○

8.2 DISCUSSION OF NECESSARY ACTIONS AND LINKS TO USAID FRAMEWORK

Regardless of the current “extent to which” status, the necessary actions identified by the Assessment Team align with some elements of the current USAID Results Framework and with some elements of the Nature, Wealth, and Power Framework (see text box at the end of this section). This section identifies the strategic recommendations for addressing drivers of the threats to forests and biodiversity identified in Section 7.7. Each strategic recommendation could be applied more broadly across the DOs and IRs for USAID/Ethiopia. Illustrative examples or specific actions that could be developed under the IRs are discussed in Section 9.

1. Continue contributing to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluating the effectiveness of GTPII/CRGE at the zonal, woreda, and kebele levels.

Ethiopia’s CRGE strategy provides the country with a framework for moving toward a greener and more competitive low-carbon economy. The integration of both mitigation and adaptation actions into Ethiopia’s national policies, programs, and strategies is a critical step in shifting its development path (CounterPoint, 2015a). However, economic growth remains the key focus of the GoE, so CRGE is mainly viewed as a tool for off-setting greenhouse gas emissions rather than a paradigm switch.

The MEFCC provides technical guidance across sectors to implement the CRGE strategy, which has been mainstreamed across the GTPII (which covers the period 2015-2020). The Ministry of Agriculture and Natural Resources (MoA), along with eight other ministries, plays a major role in the implementation of the CRGE strategy, led by an Inter-Ministerial Steering Committee. A CRGE Management Committee provides general oversight and resource allocation, and a Facility and Secretariat are involved in day-to-day management. Following establishment of the CRGE strategy in 2011, the government created the CRGE Facility to coordinate and manage climate finance flows from international and domestic public sources. Although there is a structure to manage CRGE, implementation of legislation, resolution of the apparent conflict between industrialization and green growth, and monitoring effectiveness at the regional and local levels are still challenges. Additional resources and technical assistance will be necessary to implement and monitor strategies. Ministries and offices are extremely strapped, but their participation in data collection and oversight of CRGE implementation at the local level will be necessary for full accounting of CRGE success.

Forest cover is just an example of data collection needed for CRGE implementation and for associated efforts such as REDD+ readiness (e.g., Oromia Forest Landscape Program). Even obtaining data estimates of forest cover has been difficult due to differential definition of forest types. For example, one source reported 3 percent cover (WBISPP, 2004 in FAO, 2010), others have reported 11 percent, while MEF (2015) reported 15.5 percent (unreleased data in MEF 2015).

CRGE implementation requires the establishment or enhancement of biophysical and socioeconomic database centers at all levels to enhance data availability, standardize formatting, and reduce duplication of effort. The Measurement, Reporting, and Verification Roadmap contains plans for measuring changes in forest cover and carbon stocks nationally (MoA and EPA, 2013), and the MoA, with FAO support, has already started forest inventory. However, technical capacity building for other ministries and civil society organization with roles in CRGE will also be necessary. USAID is well positioned to work through the CRGE Facility, especially since agriculture, energy, and forestry are key sectors for their abatement potential. In cooperation with civil society groups such as SOS Sahel, CIFOR, and Farm Africa and universities such as Wageningen University and Wondo Genet College of Forestry and Natural Resources, USAID can provide capacity building and technical assistance to stakeholders monitoring the success of the CRGE strategy.

Strategic Recommendation #1. Contribute to implementation of GTPII and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation.	
Link to current USAID Results Framework	Global Climate Change Initiative IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities IR1.3. Improved private sector competitiveness SO. Improved governance environment for sustainable development
Links to USAID Nature, Wealth, and Power Principles *bold = strongest links (USAID 2013f)	N1. Safeguard natural capital's productive capacities N3. Promote sustainable practices and systems that increase natural capital's productivity N4. Promote climate- and socioeconomically resilient rural production systems N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W3. Create frameworks and incentives to improve alignment of public and private interests W4. Strengthen markets and the role of rural producers in competitive but non-extractive natural resource value chains P2. Decentralize powers and responsibilities to representative and accountable authorities P7. Strengthen public and private institutions for delivery of technical and intermediary services

2. Provide capacity building, institutional support, and logistics to regional/local level authorities to help them implement their mandate and engage communities in cooperative management.

While legal and policy frameworks for the protection and use of natural resources are in place nationally, Ethiopia uses a highly decentralized system for implementation of national policies. Therefore, the protection of biodiversity and conservation of forests are threatened by differences in institutional architecture and weak enforcement at the regional level. At the local level, weaknesses in implementation are exacerbated by the lack of community engagement in resource management, as well as limited understanding of climate change threats. These challenges then trickle down from the region to the woreda level as regional offices determine zonal and district office mandates. In the past year, the GoE has established Zonal Environmental Protection Offices, since authority for environmental protection and climate change now falls under MEFCC instead of the MoA. These offices do not have sufficient resources either for their direct duties or for community outreach. Most training in participatory management to date has been funded by outside donors. Needs for protected areas and participatory management are discussed more specifically in Section 9.1.2.

Dependence of the economy and rural livelihoods on natural resources can lead to exploitation of resources without appropriate management. As agricultural development intensifies and industry expands, key ecosystem services (e.g., fisheries) provided by the lakes will be further stressed absent regional and local capacity to protect water quality and integrate climate planning into agriculture, livestock, forestry, water, and energy initiatives. The regulatory function of the local offices for environmental protection and natural resource management, which includes monitoring of the ESIA process, will be critical. For example, in the Rift Valley, dangerous pesticides are being applied to flower fields with minimal government control and enforcement. Local offices require support to address these activities and to encourage locals to commit to community management of resources. Community policing can also be used to report on such violations or to self-manage non-point source pollution and smaller scale exploitation of resources.

USAID can focus on building capacity of regional and local institutional structures through technical assistance, pilot projects that can inform programmatic changes, designation of geographic priority areas, staffing, and logistics support directly to Zonal Environmental Protection Offices. Such support could improve capacity for community outreach on environmental protection and climate change. Ideally, such outreach would elicit a commitment to mutually manage resources and adapt income-generating activities to respond to climate change. Capacity building could jumpstart the translation of national and sectoral strategies into implementable and enforceable plans at the zonal and woreda level. USAID could also contribute to cost-benefits studies of proposed and ongoing forest management. The regional strategies

already supported through CIFOR could also be supported during implementation. These include smallholder eucalyptus plantations in Amhara, dry forests and woodland restoration in Benishangul-Gumuz, area exclosures in Tigray, agroforestry in SNNPR, and PFM in Oromia. These federal-regional links still need to be assessed for their merits and needs, as different regions have different experiences and approaches that are yet to be vetted.

With appropriate support, forests and biodiversity will receive competent oversight with attention to their intrinsic value. Additionally, extending beyond natural resource management, USAID programs supporting enhanced capacity for low emissions development at the federal level can be downscaled to the regional/woreda level. Particularly, these offices can assist with data collection for greenhouse gas emission inventories.

Strategic Recommendation #2. Provide capacity building and institutional support, build on lessons learned, and provide logistics to help regional/local authorities implement their mandate and engage communities in cooperative management.	
Link to current USAID Results Framework	IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities SO. Improved governance environment for sustainable development IR3.2 Improved workforce skills development
Links to USAID Nature, Wealth, and Power Principles *bold = strongest links	N1. Safeguard natural capital's productive capacities N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W3. Create frameworks and incentives to improve alignment of public and private interests P2. Decentralize powers and responsibilities to representative and accountable authorities P3. Improve broadly based representation and continuous rural input on resource decisions P5. Integrate and empower women and marginalized groups to participate in management, decisions, and benefits P7. Strengthen public and private institutions for delivery of technical and intermediary services

3. Focus on issues of land tenure, land certification, and land use planning, particularly the contribution to land certification and mapping objectives that is inclusive and appropriately values rangelands, forests, and wetlands and assigns value to non-extractive use.

Historically, lack of land tenure has been recognized as a major barrier to private investment and agricultural productivity (USAID 2011), but land tenure also plays a key role in forest management. The Zonal Environmental Protection Offices have begun to certify land for industrial use and agriculture, identifying land use rights. However, forests and wetlands are not being included in the certification process (at least in Oromia) because of their lack of perceived value (described further in the paragraph below) (Ayana et al. 2013). The rights of citizens to manage, access, and use resources including forests and wetlands (USAID n.d), are still not clear. According to the USAID Land Tenure Profile, citizens have not been assigned rights to important seasonal water sources and pasturelands, and these areas have instead been leased, with much controversy, to international investors. MEFCC is, however, setting goals for the forest sector as part of GTPII and is revising the national forest law, which may help to clarify land rights associated with forests.

With the Derg government (1974-1991), forest ownership and management was transferred to the state, with all forest income going to the state. The population therefore has had little incentive to care about for forest management or conservation, and forests and wetlands and their biological and water resources have been under- or unvalued and essentially stand as open commons lands (Lemessa and Perault 2000). More recently, Ethiopia's economic growth strategy may have led to undervaluation; as CRGE strategy implementation is not yet sufficient to eliminate degradation and stop exploitation. By valuing forest and wetland ecosystem services and ensuring land tenure that encourages participatory management, GoE can provide incentives for protection. The work of UNESCO in the Kaffa Biosphere Reserve and the OFWE forest management

around Robe are good examples of equitable management of lands for economic growth, local user rights, and protection of resources.

CIFOR has conducted several tenure studies in Ethiopia related to communal forest lands, PFM, and smallholder mixed farming systems, identifying effective practices for scaling up, along with improvement measures and enabling conditions. This research did not resolve the issue of whether pastoralists and agro-pastoralists should have their land certified and what form that certification might take. Villagization of these areas has been controversial, and the risk of reallocation of land to investors is high without clear rights (Stebek, 2011).

USAID is already contributing significantly to improved land tenure systems through its property rights and resource governance work, first with ELTAP and ELAP and more recently the Land Administration and Nurture Development (LAND) project. USAID could, however, expand and support certification to conserve undervalued but biologically important ecosystems. Building capacity of the Zonal Environmental Protection Offices to perform certifications would advance the initiative for country-wide certification, which is behind schedule due to limited resources. Trainings on certification have also been organized for the staff of the national forestry research institute as well as for the staff of Wondo Genet College of Forestry. Standards for certification itself also need to be revisited; zonal specialists primarily reference slope as the main consideration for certifying land uses. The availability of groundwater, the importance of areas as receiving waters or buffer zones, and the ability of the surrounding areas to support associated facilities is not considered at all in the certification procedures.

There is also a need to advocate for policies that allow communities to engage in forest and wetland management and to receive incentives for protection or sustainable use of these resources. The role of communities is also being strengthened through efforts to support REDD+ agendas with forest inventories. Once certification is in place, planners can then turn to economic growth with incentives for conservation and sustainable use, in combination with recommendations for continued PFM and PRM.

Strategic Recommendation #3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services.	
Link to current USAID Results Framework	Global Climate Change Initiative IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities IR1.3. Improved private sector competitiveness IR1.4. Increased resiliency to and protection from shocks and disasters SO. Improved governance environment for sustainable development DO3 Cross cutting. Governance/conflict mitigation
Links to USAID Nature, Wealth, and Power Principles *bold = strongest links	N2. Encourage restoration of degraded or “low-potential” lands and other natural capital N3. Promote sustainable practices and systems that increase natural capital’s productivity N4. Promote climate- and socioeconomically resilient rural production systems N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W3. Create frameworks and incentives to improve alignment of public and private interests P1. Strengthen inclusive rural land and natural resource tenure systems, and procedural rights P5. Integrate and empower women and marginalized groups to participate in management, decisions, and benefits P7. Strengthen public and private institutions for delivery of technical and intermediary services

4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking/financing solutions.

While the CRGE strategy has been fully integrated into the GTPII, the actual mechanisms for green business development and promotion should receive additional attention. The recommendation here applies to

sustainable, non-extractive, and environmentally sensitive businesses, as well as processes and products that have built in climate resilience and mitigation. Businesses could range from natural forest product sales to post-harvest processes (e.g., drying of tobacco or coffee roasting that utilizes renewable energy) to small renewable energy schemes.

The industrialization of Ethiopia focuses on large international businesses, primarily in manufacturing and agriculture, with much less promotion of environmentally conscious development, especially in the “missing middle” (World Bank 2015). The World Bank has addressed the gap in small business financing, recently announcing a \$200 million investment in the Small and Medium Enterprise Finance Project (World Bank 2016b). While activities to support SMEs in agriculture production have begun, there is weak private sector involvement across the entire agricultural value chain, particularly for post-harvest processing, which contributes to 35 percent losses post-harvest. Eliminating these losses with the help of SMEs would help achieve food security goals, but funding has been a challenge. For long-term success, especially internationally, these commodity-producing SMEs will require transparent accounting of their green practices. This need for documentation can create space for SMEs in distribution, packaging, processing, and trade; however, training in these roles will be needed. The additional jobs created should help reduce the number of households engaging in activities that destroy carbon stocks or emit greenhouse gases (such as charcoaling and the livestock industry) and therefore assist with meeting objectives of the CRGE strategy.

Microfinance institutions have been largely servicing individuals and ignoring SMEs (World Bank 2016). USAID could further support SMEs by encouraging the banking sector to promote small business tools such as mobile money. Banking systems also need to consider models that could help to spur a cultural shift away from using livestock as an informal “banking” system. USAID is already making progress in improving access to finance with the microfinance and mobile banking programs in Somali, Afar, and Oromia regions.

Finally, the lack of electricity for cooking and household use, especially in rural areas, is a driver for deforestation and also contributes to long-term poverty. SMEs that promote innovation, financing, and diversification of the energy sector could contribute significantly to the protection of forests. There is room for SMEs to work on local promotion of energy-saving technologies such as cook stoves, charging centers, and LED lighting, as well as introduce alternative technologies (e.g., biochar stoves and mini-hydropower). Support to such SMEs could spur growth in the job sectors, addressing the youth unemployment and landlessness issue.

Strategic Recommendation #4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.	
Link to current USAID Results Framework	Global Climate Change Initiative IR1.2. Increased livelihood transition opportunities IR1.3. Improved private sector competitiveness IR3.2 Improved workforce skills development
Links to USAID Nature, Wealth, and Power Principles *bold = strongest links	N2. Encourage restoration of degraded or “low-potential” lands and other natural capital N4. Promote climate- and socioeconomically resilient rural production systems W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W2. Invest revenues from resource extraction into creation of new assets and incomes W3. Create frameworks and incentives to improve alignment of public and private interests W4. Strengthen markets and the role of rural producers in competitive but non-extractive natural resource value chains W5. Plan for the equitable and efficient distribution of costs and meaningful benefits P5. Integrate and empower women and marginalized groups to participate in management, decisions, and benefits P7. Strengthen public and private institutions for delivery of technical and intermediary services

5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.

The most immediate threats to national parks and sensitive ecosystems are poor rangeland management and illegal extraction for household use (IBC 2005). Grazing in areas with sensitive soils, overgrazing, and forest clearing were observed across the country during the field assessment. For example, while some level of traditional migratory grazing has always taken place on the Senatti Plateau, delicate soils and vegetation are being damaged because herders are bringing cattle further from drought-stricken lowlands; the damage is compounded by pressure from the growing local population (e.g., near Rira village and Dinsho in Bale). In addition, livestock on marginal lands tend to feed on hard-to-digest fodder, contributing to higher methane gas emissions, a major component of greenhouse gases in Ethiopia. Cattle also are accompanied by domestic dogs, which have transmitted canine distemper to wolf populations, resulting in a devastating die-off in 2015. Forest and rangeland tenure have had unclear management and rights structures for decades (see Section 9.1.1 for further details). As climate changes, the lowlands may become more inhospitable to grazing. Similar issues of overuse and resource extraction exist in forest areas. Attempts to enforce laws against forest extraction have mostly been ineffective (Zewdie 2003), especially in the absence of PFM.

The need to continue and build upon existing CBNRM and PFM efforts is critical for preserving the remaining forests and biodiversity hotspots in Ethiopia. PFM was introduced in the mid-1990s, and while there have already been many successes, volumes have been written on the challenges (Workeye 2010, Alemayeju 2014). GoE policies that recognize the involvement of local communities in managing forest resources include the Environmental Policy of Ethiopia (2007); the Forest Development, Conservation, and Utilization Proclamation (542/2007); and the Forest Management, Development, and Utilization Policy (2007). There is also a Guideline for Participatory Forest Management (2012), as well as a Community-based Participatory Watershed Development Guideline (Desta 2005). Notably, as part of REDD+ projects, the GoE is investing in aspects of PFM. Areas already deeply invested in PFM are the Gaysey Grasslands (which use an enclosure and fine system), the OFWE forests management programs (Bale REDD+ project), the Kaffa Biosphere Reserve (UNESCO and NABU), and the Humbo Assisted Natural Regeneration Project funded by World Bank. Projects have also shown successful reforestation with native species through natural regeneration rather than tree planting alone (Deshmukh et al. 2013), for instance through the new Oromia Forest Landscape Program (MEF 2015).

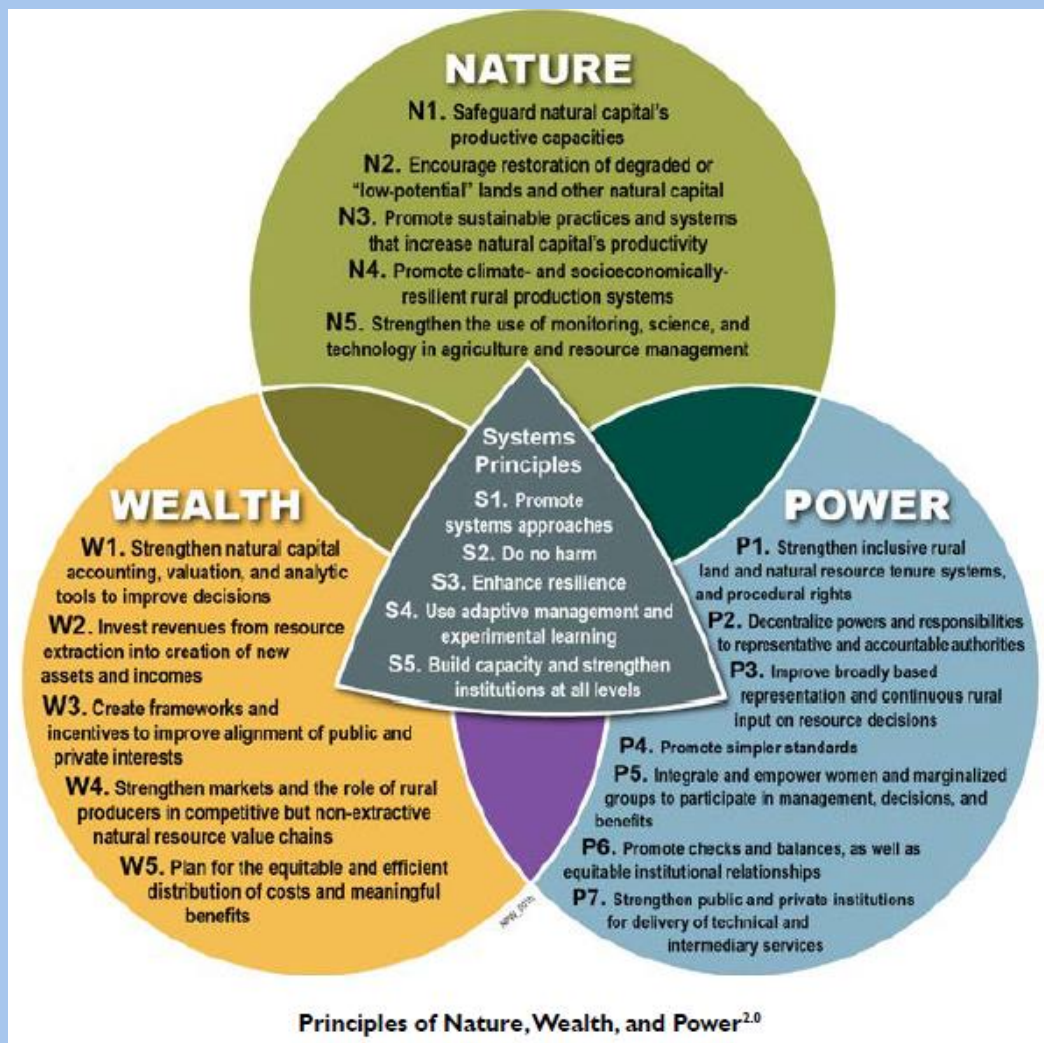
Enforcement and implementation of grazing and afforestation policies that are sensitive to community values, particularly for highly sensitive protected areas, is critical. For example, effective tree planting efforts are based on an understanding of local drivers, including: household size, labor force availability, perceptions about deforestation, and land tenure system (Gessessee et al. 2016). USAID/Ethiopia has a long history of implementation of PFM/PRM and CBNRM through PRIME (for rangelands), Food for Peace through the PSNP, and Feed the Future involvement in AGP, especially for coffee and honey. Other USAID programs using PFM/PRM support seed production, seedling trees, fodder production, fattening, and natural products. USAID could support further implementation of these practices, especially around protected areas. Use rights should be integrated with PFM/PRM. For example, “cut and carry” techniques during droughts that avoid livestock access to priority habitats, rely strongly on PFM/PRM principles and effective implementation.

Strategic Recommendation #5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.	
Link to current USAID Results Framework	Global Climate Change Initiative IR1.1. Improved performance of the agriculture sector IR1.2. Increased livelihood transition opportunities IR1.4. Increased resiliency to and protection from shocks and disasters SO. Improved governance environment for sustainable development DO3 Cross cutting. Governance/conflict mitigation
Links to USAID Nature, Wealth, and Power Principles *bold = strongest links	N1. Safeguard natural capital's productive capacities N2. Encourage restoration of degraded or "low-potential" lands and other natural capital N3. Promote sustainable practices and systems that increase natural capital's productivity N4. Promote climate- and socioeconomically resilient rural production systems N5. Strengthen the use of monitoring, science, and technology in agriculture and resource management W1. Strengthen natural capital accounting, valuation, and analytic tools to improve decisions W3. Create frameworks and incentives to improve alignment of public and private interests W4. Strengthen markets and the role of rural producers in competitive but non-extractive natural resource value chains W5. Plan for the equitable and efficient distribution of costs and meaningful benefits P1. Strengthen inclusive rural land and natural resource tenure systems, and procedural rights P2. Decentralize powers and responsibilities to representative and accountable authorities P3. Improve broadly based representation and continuous rural input on resource decisions P5. Integrate and empower women and marginalized groups to participate in management, decisions, and benefits P7. Strengthen public and private institutions for delivery of technical and intermediary services

USAID's NATURE, WEALTH, AND POWER FRAMEWORK

In 2002, USAID published the “Nature, Wealth, and Power” framework, which presented principles and action steps that consolidated lessons learned from more than 20 years of natural resources-based development in Africa. Since its publication, the NWP document has catalyzed implementation and discussion of integrated NRM programs in Africa and in other regions across the world.

In 2013, USAID published “Nature, Wealth, and Power 2.0: Leveraging Natural and Social Capital for Resilient Development (NWP2),” which updates, strengthens, and attempts to be more comprehensive than NWPI. The recommendations in this ETOA are aligned to this framework through the principles shown below.



9. DISCUSSION OF SPECIFIC OPPORTUNITIES FOR USAID BY IR

Each of the necessary actions discussed in Section 7—regardless of the current status of USAID engagement—will support sustainable development, conserve natural capital upon which fisheries and food security in Ethiopia depend, and improve climate change resilience and greenhouse gas emission reductions. Each action is assigned to a correlating IR in cases where the actions will reduce environmental risks to USAID projects and, therefore, improve the outcomes of U.S. government interventions. Some specific actions are also opportunities for USAID to engage in new activities at least loosely associated with the IR, which, in the future, could promote conservation efforts.

9.1 DOI: INCREASED ECONOMIC GROWTH WITH RESILIENCY IN RURAL ETHIOPIA

9.1.1 IRI.1 IMPROVED PERFORMANCE OF THE AGRICULTURAL SECTOR (FOCUS ON PRODUCTIVE AREAS)

Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.

Ethiopia's economic growth strategies under the first GTP focused on improving yields in traditional agriculture. Now, GTPII focuses on growing the industrial centers and increasing productivity. Because of the focus on farming, other land types (wetlands, forests) have been largely ignored and are currently ignored by the initiative to certify land use. Pastoralist and agro-pastoralist land rights have largely been ignored as well. However, through LAND, USAID is facilitating land certification for pastoralists/agro-pastoralists.

Land rights and investment are incredibly sensitive issues for the country. In some cases where business licenses were distributed for investment in forests, stakeholders consulted during the assessment reported that lands were stripped of trees for charcoal or for timber sales and then the license returned because the land was “unprofitable.” Similar issues of controversy have plagued the land tenure system (see USAID, n.d.). Commercial investment is not entirely to blame for exploitation, as local villages also graze cattle in forest areas and extract timber for home use or even sales, particularly in montane forests. Both the constitutional right of all citizens to access lands and the failure of government to plan for and control access contribute to the issue (Zewdie, 2003).

During the Derg rule (1974-1991), the forests and wetlands, and in fact all land resources, were under the control of the federal government (Zewdie, 2003). Although management and conflict mitigation were assigned to peasant associations, these land reform associations were not adequately resourced or trained, and local interpretation of user rights was common. In many cases, only agricultural lands were actively managed, while forest lands were held under communal rights, and at times, passed to poor community members for resource extraction, although in policy, the Derg designated forests for preservation (Zewdie 2003). This disjoint in policy, particularly for non-agricultural lands, led to a halt of forest rights allocation prior to the fall of the Derg. Following the fall of the Derg, policies addressed state control of and holding rights for agricultural land but again fell silent on forests and wetlands. This historical precedent remains today, with the GoE focused on agricultural and industrial land certification. CIFOR has also stepped in to assist with capacity building and policy dialogues regarding forestry laws and monitoring and evaluation, critical for certification of forests for other land uses. Without rights, and therefore a value, assigned to all land use types, forest and wetlands are subject to the tragedy of the commons as no one serves as a steward of the land.

With GTPII and the push to increase production and investment in industry, the focus is on certification of lands to facilitate private enterprise investment. The Zonal Environment Protection Offices are responsible for surveying and certifying; however, the process used for certification focuses on land slope and on existing zoning laws. Certification does not adequately capture wetlands and forests; nor does the certification process

support traditional access rights such as *wejoo* (granting of trees to younger family members) and *gogoo* (forest sharecropping). With migration and movement of communities, these traditional access rights do not always hold. Without assigned holding rights and more formal recognition, forest resources will be threatened by exploitation. Through the land certification initiative, the Zonal Environmental Protection Offices could facilitate private investment in forests and wetlands that entails appropriate oversight, identifies lands for protection per the objectives of the National Biodiversity Strategy and Action Plan, and promotes sustainable forest use by communities. Although the agricultural and industry certification is taking place, it happens extremely slowly due to the lack of resources on the local level. This same lack of resources and ability to map parcels was noted in the ELAP and ELTAP impact evaluation (USAID 2016a). Protection offices lack the resources to access woredas distant from the office or to spend multiple days in the field.

USAID has already contributed to land tenure improvements through ELAP and ELTAP. Currently, LAND focuses on agropastoralists and pastoralists as well as capacity building at the regional and zonal level. These efforts use land certification schemes that consider wetlands and forests as valued assets. These types of programs are well known to USAID through the PSNP asset building work on non-extractive uses of forests, CBNRM, and PFM in numerous regions; however, they have not been promoted through a pathway that targets newly certified lands and assigns rights for forests and wetlands. USAID/Ethiopia is, however, actively engaged in supporting efforts in tree planting and forest landscape restoration through the development of monitoring and evaluation schemes with research and academic institutions.

USAID actions could include the following:

- Advocate for integrated natural resource planning policies to account for ecosystem services provided by wetlands and forests, as well as forest and wetland user rights, as part of GTPII implementation. This will create a pathway for investment in and certification of forests and wetlands with the Ministry of Agricultural and Natural Resources and MEFCC.
- Use working groups that composed of federal and local authorities to promote coordination, communication of needs, and integrated land use planning among stakeholders.
- Form a working group to share experiences with agricultural land certification.
- Strengthen institutions and provide training for data collection and mapping using GIS mapping and survey tools (e.g., provide training to the Land and Water Resource Center, Ethiopian Statistical Agency, Ethiopian Mapping Agency, and Zonal Environmental Protection Offices).
- Develop indicators to be used for cost-effective monitoring and evaluation of forest management practices.
- Consider youth access, inequalities in age class access, and sharecropping in certification schemes.
- Provide partnering services and form relationships with academia and other specialized donors to collect and propagate natural resource databases, such as Wondo Genet Natural Resource College for forest inventories or Addis Ababa University for hydrogeologic mapping.
- Support the Zonal Environmental Protection Offices with training on forest and wetland delineation, as demarcating these boundaries requires an understanding of plant communities and soil types.
- Train an additional workforce to carry out certification, perhaps through vocational classes for youth on survey techniques, so crews of temporary workers could be used in each woreda.
- Include conflict assessments in land certification efforts because some certification may be controversial, based on traditional uses of the lands and unequitable natural resource use, as described in the USAID Trees and Forests Overlay of the Land Tenure and Property Rights Matrix (USAID 2013d).
- Extend trainings to land owners/leaseholders on sustainable natural resource use and livelihood development to promote non-extractive uses and allow land owners to demonstrate stewardship after certification.

9.1.2 IRI.2 INCREASED LIVELIHOOD TRANSITION OPPORTUNITIES (FOCUS ON VULNERABLE AREAS)

Contribute to ongoing efforts to protect and manage protected areas and surrounding forests as reserves of biodiversity (e.g., Bale National Park) with stakeholders in and around the park using PFM and CBNRM.

Protected areas in Ethiopia, which serve as reserves for biodiversity, are under threat from deforestation, agricultural encroachment, livestock grazing, and invasive species (EWCA, n.d.). The buffer zones of the protected areas, generally co-managed with surrounding communities, also suffer from encroachment and poor land management, decreasing their effectiveness. The management of protected areas has been problematic, as the areas are not legally gazetted and are inadequately funded, understaffed, and in need of equipment. The GoE, recognizing the importance of the protected area system, has invested in the project titled, “Sustainable Development of the Protected Area Systems of Ethiopia,” together with the Global Environment Facility, United Nations Development Programme, and German Agency for Technical Cooperation-International Services.

Two critical steps are necessary for protected areas to recover from degradation and preserve biodiversity. First, the protected areas’ integrity must be preserved through demarcation and in situ park management, as many may be on the brink of unrecoverable harm. Second, systems of co-management in buffer zones and reserve areas must be developed and strengthened. The buffer zones can then be developed to promote alternative livelihoods and stewardship rather than extraction-dominated livelihoods.

Bale National Park can serve as an example of issues surrounding protected areas in Ethiopia. Although this park was given specific attention and detailed during the field visits, it exemplifies some of the challenges other protected areas are facing (e.g., growing populations on the border and within, illegal extraction and homesteading, encroachment).

Bale National Park was gazetted in 2014 and is a highly biodiverse resource. The region has some of the fastest-growing urban populations in Ethiopia (Hawassa) and is designated for industrial development (Hawassa Industrial Park and Gobe-Hawassa corridor). The park’s gazettement was a critical step in the conservation of habitats for endemic species (26 percent of Ethiopia’s endemic species are here) but it is also critical for insuring the supply of surface water and groundwater across the immediate region as well as for pastoralists (approximately 10-12 million people) (FZS 2013). In 2016, an integrated natural resource use plan was developed, as the General Management Plan is coming to the end of its life.

Although Bale’s inception took place in 1970 and it was placed on the UNESCO World Heritage Site Tentative List in 2009, issues with land tenure, multiple uses, population pressures, and political sensitivities plague the park (Gashaw, 2015). These drivers have resulted in deforestation, loss of endemic species, habitat degradation, destruction by fire, and encroachment, and they threaten water retention and surface water flows to lowland areas (Jacobs and Schloeder, 2001; Alers et al., 2007; OFWE, 2014). Elephants roamed the park as late as 1901, but were no longer found by the 1950s (FZS 2013). The endangered Ethiopian wolf population had plummeted to less than 200 (*personal communication, N. Slade*) as of 2016. Population pressure is increasing, as noted by a study that reported the presence of 3,700 households (25,000 people) in the park (FZS 2013). For example, the town of Rira, located in the park, is expanding, with nearly one child born each day and new settlements being established outside the village bounds and around the park’s edges despite agreements limiting expansion (Jacobs and Schloeder, 2011; Farm Africa, 2008, McKee and Nune, 2015).

The lack of resource ownership has led to parties taking advantage of the open access (Gashaw 2015). Cattle are among the biggest threats across the park, with densities up to 250 per square kilometer. Grazing in the park and its buffer zones, including the Harenna Forest, Erica Moorlands, and Web Valley, increased from 10,500 animals in 1986 to 168,000 in 2004 (Gashaw, 2015; FSZ, 2013). However, grazing is a politically charged issue, as seasonal grazing has traditionally always taken place on the plateau. Fires have been intentionally lit to create more grazing areas for cattle and for farming (Lemessa and Perault, 2000).

Deforestation can be observed all along the park borders and even within the boundaries of the park (see Figure 23). Lack of oversight resulted in a recent road rehabilitation illegally sourcing materials from new borrow pits high on the plateau, leaving a scar that will take generations to repair. The gazettement of the national park itself created additional challenges, as it was not annexed from the surrounding kebeles, and therefore, management and natural resources enforcement must pass through an extensive review process before action can be taken to fine or remove illegal settlements, grazers, or developers.

Bale National Park also epitomizes challenges shared across the forested and biodiverse highlands of Ethiopia, including the Simien Mountains and the Kaffa Biosphere Reserve (McKee and Nune 2015). As shown in Figure 11, deforestation is most pronounced in areas along the boundaries of these highland forest areas. The woredas with the highest deforestation rates also have extremely high pressure from grazing and agricultural expansion driven by population increases, as communities move from the drought-stricken lowlands into zones with higher rainfall and more resources. The situation is similar at Nech Sar National Park (Asebe 2012). Additionally, the belts around these areas are also some of the most productive for mechanized agriculture and are therefore threatened by aggressive economic development policies. Sixty percent of Afro-alpine grasslands in Bale have been cleared for agriculture (BIDNTF, 2010).

Although many problems abound, the park also has had numerous successes, thanks to key players in the park's operation and protection. EWCA is working to scientifically conserve and manage Ethiopian wildlife and the park in collaboration with communities and stakeholders around and in the park. EWCA is working closely with the Frankfurt Zoological Society (FSZ)-Bale Mountains Conservation Program (BMCP), which was established in 2005 to provide support for ecotourism development, outreach, sustainable natural resource use, park operations, and ecological management. The park must also work with the Oromia government. FZS-BMCP is currently working in partnership with the park to implement the 2007-2017 management plan and draft the 2017-2027 management plan. Another important program, the Ethiopian Wolf Conservation Program (EWCP), works with local government partners to protect the endangered Ethiopian wolf. The first concession in the park, a privately owned eco-hotel, the Bale Mountain Lodge, has opened. There are also plans to close the park's road to through traffic and route all through traffic around the park into Dolo Mena.



Figure 21. A truck plies the roads with new power poles waiting to be erected.



Figure 20. Looking down into Rira Village and Harena forests from Bale Mountains National Park.



Figure 22 Cattle graze on the Senatti Plateau within Bale National Park.

USAID has the opportunity to directly contribute to the protection and management of Bale National Park and surrounding buffer areas, which will also hopefully inform efforts in other critical hot spots. A detailed and rigorous integrated land use plan has just been drafted for the park, but the park must implement it with limited resources. A needs assessment was also produced that highlights critical factors for protecting the park (Mckee and Nune, 2015). USAID could contribute significantly to implementation, coordination,

capacity building, and stakeholder involvement. Additionally, the pressures outside the park need to be ameliorated through development of alternative livelihoods; mitigation of drought impacts driving grazing; and implementation of PFM, CBNRM, and outreach projects to identify mutual benefits of protection. Vocational training and education can build the work force's ability to support green business and PFM efforts, especially as they align with CRGE and GTPII objectives. The situation is extremely politically charged, and the local view of the park is negative due to the historical expulsion of citizens from the park during the Derg and human-animal conflict on the park boundaries (Flintan, 2000).

Farm Africa and OFWE are already contributing to many of the recommended actions detailed below in the Bale National Park area. USAID should find means to fill gaps in these efforts and expand successful interventions to other protected areas. The recommendations include:

- Facilitate information sharing, networking, and collaborative planning between organizations working in similar areas, such as Simien National Park or the Kaffa Biosphere Reserve or even more globally with areas facing similar challenges, such as the Andes, where grazing and impacts on cryptobiotic soils exist.
- Promote banking and use of financial institutions rather than the use of livestock as a saving mechanism.
- Build capacity for livestock productivity by improving fodder production, grassland improvement projects, establishing water supplies, and linking to veterinary health services, especially in communities along and below the Bale escarpment.
- Explore the implications of annexation of the national park from the surrounding kebeles, which would allow it to operate autonomously but still retain a leadership panel for park operations and planning.
- Support the implementation of the integrated natural resource use plan developed by the FZS-BMCP, including allocation of resources, policy advocacy, data gathering, and mapping.
- Develop awareness-raising campaigns, training, and alternative livelihoods (e.g., participation in ecotourism) for sustainable use of natural resources in communities in the buffer zone. Communities should be made aware of the values of the protected areas for soil erosion control, rainfall management, medicinal plants, and tourism.
- Provide investment opportunities and facilitate development of green business in and around the park (linked to IR1.3), including the training and vocational education of a work force for community conservation.
- Work with policy makers, regulators, and local communities to make the Sanetti Plateau a reserve (i.e., no-go zone) for grazing.
- Promote family planning in zones around and communities within the park to manage growth rates.
- Work with existing organizations such as OFWE in buffer zones to promote, augment, and expand PFM and CBNRM. Use lessons learned and pilot studies to expand PFM and CBNRM into other areas and to guide conservation efforts. Consider promoting forest restoration, non-timber forest products market linkages and commercialization, and management of bamboo resources as part of PFM and CBNRM efforts.
- Support capacity building, monitoring, and data collection, organizations and offices already invested in the park.
- Conduct studies to evaluate carrying capacity for livestock based on ecosystem type to help inform livestock management plans and objectives.
- Utilize studies to examine the effectiveness of responsibility and net benefit sharing arrangements amongst actors (notably the regional representatives and the surrounding communities).

9.1.3 IRI.3 IMPROVED PRIVATE SECTOR COMPETITIVENESS

Provide development credit authority (DCA) guarantees for ecotourism/green investments, which traditional lenders may consider risky.

The incentives for green development still need to be strengthened across the country, although CRGE integration into GTPII partially addresses this issue. SMEs can play an important role in green business development and innovation; however, they are locked out of financial support mechanisms. Small business owners interviewed by the Assessment Team, particularly in tourism, frequently voiced concerns about difficulty obtaining business licenses. They also found that tax incentives currently offered are not meaningful because they only offer tax cuts on profits, and they stated that duty-free import incentives are irregularly offered. Additionally, foreign businesses find it difficult to obtain lending from traditional foreign banks, as Ethiopia is seen as a risky investment. In addition, the local banks had extremely high interest rates for the loans they were offering, and collateral requirements are often prohibitive.

USAID can help establish finance mechanisms and support the still nascent private sector. USAID has experience working with SMEs and funds a loan guarantee DCA mechanism with ENAT bank for women-owned enterprises in agro-processing industries, service, textiles, food processing, hotels and tourism, and other similar SME activities. The new World Bank SME Finance Project (World Bank, 2016b) will also provide additional opportunities to support SMEs, even international SMEs in green businesses, to fill the void between large multinational investment and microenterprise. Forest Connect Alliance, which is managed by FAO and the International Institute for Environmental Development (Gebremariam et al., 2009), is also operating in Ethiopia and provides a social network to support SMEs in the forestry sector (Forest Connect, n.d.). World Bank (2016b) identified specific needs for SMEs, including revised business models for financial institutions serving SMEs, reformed loan appraisal techniques based on transactional technologies rather than personal relationships, new bank products, and research on SMEs' long-term financing needs. Additionally, mobile money solutions and financial technology (aka FinTech) for SMEs could meet the needs of business development in areas where few brick and mortar banks exist. Numerous services offer app-based payment systems, peer-to-peer lending, and unbundled banking services at a rate much cheaper than that offered by traditional lending institutions.

Finally, because nearly 33 percent of Ethiopia's population is Muslim (CIA, 2016), there is a need for halal banking systems or sharia-compliant financing to serve SMEs for Muslim investors and business owners. Oromia International Bank introduced Islamic banking services in 2013 (World Bulletin, 2014) with a reported 4,000 customers by 2014. The bank is also targeting SMEs for this support, but western banks and donors have largely ignored this type of financing support in Ethiopia. One recent exception is the financing of four new Bombardier airplanes for Ethiopian Airlines through Ibdar Bank (Bahrain-based) with support from Export Development Canada (Gebrial, 2014). There are challenges

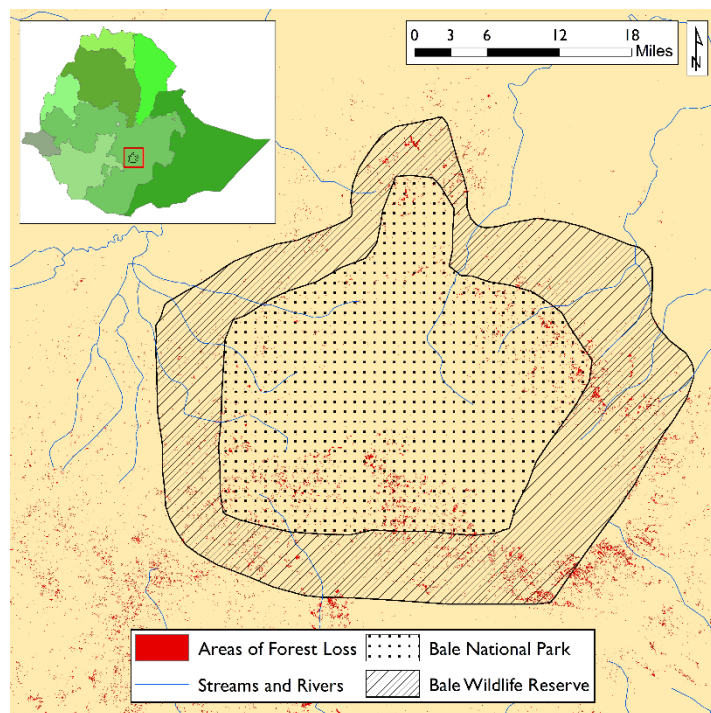


Figure 23. Map of deforested areas (30 m² pixels) in the vicinity of Bale National Park and its buffer zones (2000-2013).

that will need to be addressed; such as the small size of lenders, strong competition, profitability, and issues with standardization (AT Kearney, 2012). Also, Chong and Liu (2009) warn that Islamic banking should be subject to the same regulations and oversight as western banks.

USAID actions could include the following:

- Work with the GoE to develop real tax benefits and business incentives that promote conservation and are targeted to SMEs, rather than large, multinational businesses.
- Build the capacity of SMEs to manage private capital and develop sustainable business plans.
- Develop financing mechanisms for SMEs, especially in tourism and green technology, and expand successful private sector engagement coupled to community-led initiatives being investigated by CIFOR.
- Implement mobile money and FinTech solutions, which may require an increase in access to mobile networks through public-private partnerships but offer much cheaper and quicker financing solutions to traditional banking.
- Improve the transparency of the financing process for small businesses in the green economy.
- Work with banks to develop a structure for sharia-compliant financing to attract Muslim investors to green business, while still meeting regulatory standards.

9.1.4 IRI.4 INCREASED RESILIENCY TO AND PROTECTION FROM SHOCKS AND DISASTERS

Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses, especially renewable energy.

While clean energy projects may mitigate climate change through clean energy production, they also can be impacted by climate change, especially in hydropower, where the infrastructure and profitability is highly vulnerable to climate threats and environmental degradation interactions such as flooding, landslides, and drought (Fu et al., 2014). This puts the success of economic growth strategies at risk as well because they rely heavily on cheap energy production to attract large-scale foreign investment. In other countries such as Zambia, production changes dramatically by season, and during the dry season, impoundments are at levels too low to generate sufficient power, leading to load shedding across the country (Engineering Institution of Zambia, 2015). In the face of a changing climate and in an effort to increase resilience from shocks, it is important to find ways to protect the energy infrastructure. Although the current USAID/Ethiopia portfolio does not necessarily consider this resiliency as it relates to IR1.4, it is an area where there is need and could also be partly linked to more traditional resiliency activities in which USAID/Ethiopia is already engaged, such as watershed protection and reforestation.

Degradation of lands around hydropower resources is one threat that is also linked to resiliency and that may become more pronounced with climate change. The implications of this interaction were visible during Assessment Team visits to hydropower-producing regions. In the Gibe watershed, the landscape was highly eroded, and the river itself was extremely sedimented (Devi et al., 2008). One local NGO representative stated that, “the Gibe is bleeding,” referring to the red color of the river. Sedimentation results in silting of dams, reducing the dams’ lifetime (Demissie et al., 2013). Land degradation also contributes to runoff events rather than infiltration of water and slow release into streambeds (Vogl et al., 2016). These factors lead to energy infrastructure having to withstand extremes in flow (high and rapid waters in the rainy season and little water in the dry season) similar to the effects mentioned for Zambia above. Other watersheds nearby with protected sources, such as the Gojeb River (protected by the Kaffa Biosphere Reserve and the Bonga National Forest Priority Area), are comparably unsilted and have regulated flow over the course of the year. And in one study of five hydropower systems in India, soil and water conservation measures led to a 44 percent reduction in sediment transport (Vogl et al. 2016).



Figure 24. The dense canopy of the Kaffa Biosphere Reserve where PFM has protected forests and watersheds.

Since water is a critical input to most types of energy production, the energy sector can be fortified against threats described above through watershed management and restoration, reducing the likelihood of damage during their 20-50 year lifespans. Risks from shocks and disasters can also be mitigated by diversifying energy sources. For example, USAID is already looking at means by which Power Africa can contribute to clean energy development in Ethiopia and across the region as part of the East African Power Pool, where the principles of payment for ecosystem services and watershed rehabilitation can be applied. Power Africa could also assist with creating incentives for ecosystem services in independent power producers design. Power Africa in Ethiopia is currently contributing to development of new laws and regulations that will facilitate private-sector investments in geothermal, solar, wind, hydro, and biomass projects. Power Africa is also assisting in the planning, operation, and maintenance of generation, transmission, and distribution systems and improving GoE contracting for supply, installation, and construction to ensure full realization of lifecycles for equipment and facilities. Pilot projects to demonstrate how to integrate watershed management into new power projects could be another area for Power Africa to focus on. At the ground level, technical capacity for hydrologic modeling to quantify benefits from soil and water conservation activities would be needed to develop appropriate ecosystem services payment schemes, since not every area in a watershed contributes equally (Vogl et al., 2016). Other studies note that particular attention must be paid to diversification of soil conservation measures, regular maintenance schedules, and standardization of structure design to fully realize the potential of the watershed protection (Meshesha and Birhanu 2015).



Figure 25. Seedlings in a local nursery to be planted by community foresters.

USAID actions could include the following:

- Promote watershed protection and rehabilitation programs that afforest watersheds and stabilize slopes through soil conservation measures (e.g., soil bunds and filter strips), especially in headwaters of priority rivers for hydropower.
- Advocate for policy that implements an ecosystems services tax on hydropower projects to fund restoration and protection efforts in communities upstream from the project, as intact watersheds can improve profitability and longevity of hydropower schemes.
- Ensure that land certification is inclusive and reflective of the status of natural resources and the services these resources provide (especially if developing payment for ecosystems services).
- Invest in systems for collecting biophysical and climate data from watersheds slated for hydropower
-

development and build capacity for modelling of priority areas for soil conservation measures.

- Conduct a study on valuation of ecosystem services, particularly for new energy projects but also for large irrigation schemes.
- Link green energy development and diversification to financing mechanisms for SMEs discussed in Strategic Recommendation #4. Provide technical support for these new energy endeavors to SMEs to ensure projects are sustainable over the long term.
- Promote industrial and community-level technologies such as fuel saving and develop alternative energy sources such as bio-gas production, bio-char, or other innovative technologies.

9.1.5 IRI.5 IMPROVED NUTRITIONAL STATUS OF WOMEN AND YOUNG CHILDREN (ALSO INTEGRATED INTO DO2)

Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides.

Rift Valley lakes as well as Lake Tana are important for meeting the growing water and food demands of the Rift Valley population (Godebo, 2013). With the lake zones being targeted for additional industrial development, and therefore, accompanying population growth, limiting pollution is important, especially for health and nutrition programs operating in the area. While safe drinking water is a public health issue for the

entire community, pollution of the lake systems also disproportionately affects sensitive subpopulations (i.e., lactating and pregnant women, the malnourished, and children) and the poor. These groups are generally more sensitive to contaminants, and the poor are potentially more highly exposed, as they eat more wild-caught fish and undesirable large fish (e.g., big barb) to meet their dietary needs (Deribe 2012, Deribe et al. 2014). Pollutants accumulate in these fish, particularly in large fish.

Currently, new industrial facilities are required to treat wastes before discharging to water bodies; however, Zonal Environmental Protection Offices and NGO interviewees report that monitoring of the construction and operation of these systems is extremely challenging (*Robe Zonal Protection Office*). Once permits are given and the initial site inspections are conducted, the GoE does not conduct regular discharge monitoring of these facilities due to a lack of resources (*personal communication, Hawassa Zonal Protection Office*). Non-point discharges (e.g., farm runoff, polyaromatic hydrocarbons from roads, deposition from air pollution) receive almost no monitoring. Academia is playing this watchdog role in most areas (e.g., Addis Ababa University, Wageningen University, and Hawassa University), along with several civil society organizations. The United Nations Environment Programme also funded an early study of lake pollution (Odada et al., 2003). As new large-scale industry comes on line, ensuring documentation of the baseline status of the lakes is critical. A transparent enforcement protocol that allows for public notification and involvement and documentation of penalties is also important. This environmental protection system is critical to protect water resources that augment diets through the Rift Valley and around Bahir Dar, as well as habitat for diverse aquatic biota and flora.

There are already numerous organizations working to protect the Rift Valley lakes, with which USAID has previously and could continue to collaborate. USAID has already in fact funded several graduate students to collect data on the Rift Valley lakes. Additionally, in 2014 USAID funded the Research-inspired Policy and Practice Learning in Ethiopia (RiPPLE) project, "The Fate of Hawassa City: Lake Hawassa and Her People-Improving Waste Management." This project directly addressed, through capacity building and stakeholder engagement, solid waste management issues around Lake Hawassa and the SNNPR, resulting in the formation of the Save Lake Hawassa organization. SOS Sahel is implementing a climate-resilient agriculture program focused on identifying sources of lake pollution and limiting agricultural impacts on the lake. Hawassa University, supported by SIDA, is conducting baseline studies of the lake system and has drafted mitigation measures to curb pollution. The Environmental Concern Group is a newly formed group of industry, hotel, hospital, and forestry representatives assembled to collectively address issues with lake conservation and development. The Authority for the Rift Valley Lakes manages the Rift Valley lakes system and serves as a go-between among regions.

There is a lack of consistent data across the Rift Valley lakes on the hydrogeologic connections that feed the lakes. A number of studies have been conducted and action plans developed (e.g., IBC, 2005b; Hengsdijk and Jansen, 2006; Ayenew and Becht, 2007; Godebo, 2013; Jury, 2014; Yimer et al., 2014), but the lake system is extremely complex with multiple factors influencing water quality and hydrogeology (e.g., climatic variations, withdrawal for industrial use, surface pressure, wind, inflow, and tectonic variations). In just one example of the dynamic nature of the lakes, Lake Beseka has risen more than four meters in the past decades due to the discharge of hot springs into the lake (Goerner et al., 2009). The data will need to be continuously updated as management plans implemented and the need for outfall monitoring with industrial development evolves. The Rift Valley lake system also does not have detailed biodiversity inventories, except for fish species. The lakes are thought to house diverse microbial and algal communities that have yet to be documented (IBC, 2005b).

USAID actions could include clean water initiatives by:

- Supporting ESIA-strengthening efforts as outlined in Section 9.4.
- Continuing to support data collection in the lakes systems including baseline data (water quality, hydrogeologic connections of the system; biodiversity inventories especially for algae,

microorganisms, and invertebrates) and monitoring data (outfall and non-point discharge monitoring).

- Supporting appropriate solid and liquid waste treatment through WASH interventions in and around the Rift Valley (see also Section 9.2.2).
- Providing support, staffing, and capacity building for local monitoring agencies.
- Strengthening policies for pollution enforcement and licensing requirements.
- Setting aside buffer zones near lakes, including wetlands, and establishing land buffers along riparian corridors.
- Working with GoE to establish enforceable and regular point and non-point discharge monitoring frameworks for Rift Valley lakes.

TABLE 7. DOI SPECIFIC ACTIONS AND EXTENT TO WHICH EXISTING IRS RESPOND TO BIODIVERSITY AND FOREST CONSERVATION

Development Objective or Intermediate Results	Actions necessary to achieve conservation of tropical forest and biodiversity (Illustrative Examples detailed in Section 8)	Proposed Actions Alignment with Mission Indicators	Extent to which the DO or IR will contribute to sustainable management and conservation of tropical forests and biodiversity
<i>IR1.1: Improved performance of the agricultural sector (focus on productive areas)</i>	<i>Contribute to efforts not only for the certification of lands for traditional agriculture but also for land holding rights to non-extractive uses of forests, pastures, and wetlands.</i>	<i>PS6.2-3 HL8.3-1, 3-2 EG3.1-13, EG3.2-18 EG10.2-5, EG10.4-1 - 10.4-6</i>	<i>This IR through Feed the Future will promote selection of key value chains and intensification of agriculture in targeted areas through a “pull” model. The approach is to introduce modern technology, certifications, and watershed management to increase productivity, which will reduce the pressure to expand agriculture fields into forests.</i>
<i>IR1.2: Increased livelihood transition opportunities (focus on vulnerable areas)</i>	<i>Contribute to ongoing efforts to protect and manage protected areas and surrounding forests as reserves of biodiversity, working with stakeholders using PFM/PRM and CBNRM. Provide training opportunities, especially vocational and entrepreneurial, for rural communities that align with the CRGE and GTP objectives.</i>	<i>PS6.2-3 ES.5-1 EG3.1, 3.6, 3.7, 3.9 EG3.1-12, EG3.2-18 EG10.2-10.2-5 ES2.1-2.2</i>	<i>This IR, through GRAD, and pastoralist programs (PLI (closed) and PRIME), targets the most vulnerable for technology adoption and livelihood transition opportunities through a “push” approach that leverages gains from IR1.1 activities. Reducing the dependence of vulnerable households on unsustainable natural resource use and building resiliency of these households will protect forests from deforestation and poaching.</i>

TABLE 7. DOI SPECIFIC ACTIONS AND EXTENT TO WHICH EXISTING IRS RESPOND TO BIODIVERSITY AND FOREST CONSERVATION

Development Objective or Intermediate Results	Actions necessary to achieve conservation of tropical forest and biodiversity (Illustrative Examples detailed in Section 8)	Proposed Actions Alignment with Mission Indicators	Extent to which the DO or IR will contribute to sustainable management and conservation of tropical forests and biodiversity
		EG.3.2-1 EG6.1, EG6.2, EG6.3	
<i>IR1.3: Improved private sector competitiveness</i>	<i>Provide DCA guarantees for ecotourism/green investments, which traditional lenders may consider risky.</i>	ES.5-1 EG3.2-22 EG.4.2-1, EG.4.2-2 EG.5-2, EG.5-3	<i>This IR supports efforts to drive the enabling environment, particularly for agricultural productivity and trade. By promoting business opportunities and diversification across the entire value chain, the IR decreases the number of households relying directly on agricultural or livestock production, and therefore, slows the rate of agricultural expansion and grazing. The IR also supports a nascent economy where diversity of products, including agricultural biodiversity (e.g., coffee, teff) has space to evolve and grow through private enterprise.</i>
<i>IR1.4: Increased resiliency to and protection from shocks and disasters</i>	<i>Link watershed protection and reforestation efforts to the energy sector through payment for ecosystem services to stabilize/guarantee water flows for multiple uses.</i>	EG.3.2-20 EG.3.2-5 EG3.2-18 EG.7.1-1 EG10.2-1, EG10.2-2, EG10.2-10.2-5	<i>This IR targets resiliency of PSNP households and maintenance of gains for Feed the Future programs; therefore, as noted for IR 1.1-1.2, these efforts support biodiversity and forest conservation by stabilizing food reducing the burden on resources for food security and livelihoods. By targeting disaster risk reduction and climate adaptation, USAID programs can reduce the likelihood that drive households to extraction of natural resources for income or food.</i>

TABLE 7. DOI SPECIFIC ACTIONS AND EXTENT TO WHICH EXISTING IRS RESPOND TO BIODIVERSITY AND FOREST CONSERVATION

Development Objective or Intermediate Results	Actions necessary to achieve conservation of tropical forest and biodiversity (Illustrative Examples detailed in Section 8)	Proposed Actions Alignment with Mission Indicators	Extent to which the DO or IR will contribute to sustainable management and conservation of tropical forests and biodiversity
<p><i>IR1.5: Improved nutritional status of women and young children (also integrated into DO2)</i></p>	<p><i>Contribute to safe diets by supporting ongoing baseline studies and regular monitoring of pollutants in Rift Valley lakes, particularly heavy metals, endocrine disruptors, and pesticides.</i></p> <p><i>Work with GoE to establish enforceable and regular point and non-point discharge monitoring frameworks for Rift Valley lakes.</i></p>	<p><i>EG10.1-1,</i></p> <p><i>HL8.3-1, 3-2</i></p> <p><i>EG3.1-12</i></p> <p><i>EG10.2-1</i></p>	<p><i>In a combined effort by Feed the Future and the Health Office, strengthen capacity for nutrition delivery programs. In its link to increased attention at the household level to nutrition, the program indirectly focuses on increased production of household gardens, and therefore has a minor but limited contribution to conservation of forests and agricultural biodiversity. In this support as well, more diverse diets directly from household production could also decrease the reliance on wild forage and hunting. Additionally, programs to support micro-entrepreneurs through DCAs in the agricultural sector also diversify the market and facilitates movement away from resource-intensive agriculture and pastoralism.</i></p>

9.2 DO2: INCREASED UTILIZATION OF QUALITY HEALTH SERVICES

9.2.1 IR2.1 IMPROVED PROVISION OF HEALTHCARE SERVICES BY HEALTHCARE PROFESSIONALS

No opportunity identified.

9.2.2 IR2.2 IMPROVED HEALTH SYSTEMS MANAGEMENT AND INTEGRATION AT THE NATIONAL AND COMMUNITY LEVELS

Improve handling of liquid and solid waste and stormwater, particularly to protect ecology of receiving waters and assure sanitary landfill capacity.

A significant challenge to development in both urban and rural environments is the handling of solid and liquid wastes. Ineffective waste management also impacts stormwater management, especially in urban areas,

which also impacts drinking water systems (Wondie, 2009). Standing water can serve as a vector breeding site, and stormwater contaminated with sanitary waste can flow into surface waters, contribute to bacterial and viral loading in groundwater, and overload sanitation systems (Wondie 2009). Municipal dumping sites visited during the field assessment were not engineered, but were essentially open dumping grounds, often open areas that are actually important for biodiversity and water regulation. The Ministry of Water Irrigation and Energy (MWIE) notes that open discharge of grey water is common and that access to sanitation is an issue, leading to sewage in streets, pollution of water bodies, and waterborne diseases (MWIE, 2015). In 2016, poor water management and lack of access to clean water also contributed to a reported acute watery diarrhea outbreak in the city of Addis Ababa (Schemm 2016). The health care system also contributes to solid and liquid waste and can increase waste management risk. Heylamichael et al. (2011) found that of nine health facilities in Hawassa, all facilities inappropriately treated solid waste and wastewater at each stage of the waste life cycle. Under *IR2.2.5: Improve health infrastructure and laboratory systems for service delivery* as well as *IR2.2.6: Strengthened policy, planning, and governance*, USAID health programs have the opportunity to reduce waste issues in receiving waters by implementing modern standards for water treatment and waste control, reducing threats to riverine and wetland ecosystems.

USAID could contribute to the following:

- Implementation of the Urban Wastewater Management Strategy (MWIE 2015), and capacity building for design and engineering of climate-resilient infrastructure that accounts for variability in rainfall intensity.
- Technical assistance for design and engineering of sanitary landfills in urban areas and for referral hospitals.
- Support testing and monitoring of treatment systems at supported clinics, hospitals, and laboratories.



Figure 26. A municipal dumping ground in a wetland outside of Jimma.

9.2.3 IR2.3 INCREASED DEMAND FOR HEALTHCARE SERVICES

Continue to support family planning services that directly address population growth threats, mitigating contributions to climate change, and indirectly protect biodiversity and forests by decreasing pressures on rangeland and forests for food production.

The annual population growth rate of Ethiopia is approximately 2.3 percent, with fertility rates of 4.1 (USAID 2016b). Although the population is overall moving into urban areas, the family size and fecundity are disproportionately higher among poor and pastoralist households, with birth rates highest among Somali women (6.4 children/woman) and lowest among those in Addis (1.7 children/woman) (Central Statistics Agency, 2014). This is reflective of disparities in access to family planning but also related to cultural norms. Children under 15 years old make up 45 percent of the population (Central Statistics Agency 2014).

The reason family planning plays a role in conservation of forests and biodiversity, particularly in Ethiopia is that population growth is a primary driver of deforestation and agricultural land expansion. Additionally, a large portion of the diet in Ethiopia consists of beef. Grazing is a major threat to forests and contributes to land degradation in Ethiopia (Birhanu 2014, Young 2012, Taddese 2001). As wealth increases, more cattle are

purchased, further degrading a sensitive landscape. Reducing population growth will reduce the need for additional beef production.

USAID investments in family planning can make a meaningful contribution to responding to population growth. USAID is making huge investments in family planning by increasing availability of family planning services, assisting with contract procurement, strengthening the health system, and helping the GoE meet its Health Sector Transformation Plan targets.

TABLE 8. DO2 SPECIFIC ACTIONS AND EXTENT TO WHICH EXISTING IRS RESPOND TO BIODIVERSITY AND FOREST CONSERVATION

Development Objective or Intermediate Results	Actions necessary to achieve conservation of tropical forest and biodiversity (Illustrative Examples)	Proposed Actions Alignment with Mission Indicators	Extent to which the DO or IR will contribute to sustainable management and conservation of tropical forests and biodiversity
<i>DO2: Increased utilization of quality health services</i>			
<i>IR2.1 Improved provision of healthcare services by healthcare professionals</i>	<i>No opportunity identified</i>	<i>None identified</i>	<i>None identified</i>
<i>IR2.2 Improved health systems management and integration at the national and community levels</i>	<i>Improve handling of liquid and solid waste and stormwater, particularly to protect receiving waters and assure sanitary landfill capacity.</i>	<i>HL8.3-1, 3-2</i>	<i>This IR, particularly in the improved health infrastructure and laboratory systems and oversight of indoor residual spray programs, contributes to protection of aquatic biodiversity. By supporting health care waste systems that handle and sequester hazardous medical wastes from entering aquatic systems, USAID is protecting water quality from degradation and preventing sensitive aquatic receptors from exposure to endocrine-disrupting compounds. Additionally, careful IRS management and disposal assures that the application of pesticides avoids non-target organisms including aquatic species and beneficial insects.</i>
<i>IR2.3: Increased demand for healthcare services</i>	<i>Continue to support family planning services that directly address population growth threats and indirectly protect biodiversity and conserve forests</i>	<i>HL7.1-1 to 7.1-3 HL7.2-1 to HL7.2-2</i>	<i>Same as already noted.</i>

9.3 DO3: IMPROVED LEARNING OUTCOMES

9.3.1 IR3.1 INCREASED ACHIEVEMENT IN BASIC EDUCATION, PARTICULARLY IN EARLY GRADE READING

None identified.

9.3.2 IR3.2 IMPROVED WORKFORCE SKILLS DEVELOPMENT

Invest in developing a climate-smart work force to support CRGE objectives, particularly those that can work at the zonal and woreda level.

Ethiopia is addressing the issues of climate change as a global partner through its CRGE plan. There seems to be encouraging political commitment to realize the plan objectives. However, huge implementation capacity gaps for some of the initiatives like REDD+ remain. Additional qualified personnel are needed to monitor, verify, and report on REDD+ initiative results in order to tap the anticipated return from carbon credits. Currently, most of the expertise sits within the REDD+ Technical Working Group at the national level, with major donors such as the Royal Norwegian Government and Department for International Development (DFID), as well as with OFWE at the regional level.

In recognition of the identified shortfalls, Hawassa University, Wondo Genet College of Forestry and Natural Resources, is nationally mandated to conduct short- and long-term trainings and research to enable the government to fill the gap. The college is currently offering eight M.Sc. programs and one Ph.D. program and another three new M.Sc. programs commenced in September 2016. Among the M.Sc. programs, only Wondo Genet is supported by the Norwegian government, while others are struggling with financial limitations.

Discussions held with two prominent professors of the college indicated that capacity limitations at all levels are wider than anticipated. Though the college has crafted a very relevant curriculum to fill the gaps and widen the knowledge base of climate, climate change risks, adaptation and adaptation-based mitigation measures, capacity to offer those topics and finances to conduct research remain a big challenge. Under IR3.2, USAID/Ethiopia could contribute to REDD+ efforts through support of vocational training and assistance in building university capacity.

USAID could contribute to the following:

- Providing support to university and certificate curriculums for climate change specialists (e.g., the Wondo Genet program), and cross-linking to GoE staffing support plans for CRGE.
- Establishing partnerships and collaborations between Ethiopian and international scientists to build capacity and create opportunities in academia.
- Building a national data management system and standards for data collection that support REDD+ efforts
- Generating interest in science, technology, engineering, and math (STEM) in basic education to foster environmental stewardship in students who will serve as the next generation of conservationists. This was viewed by educational professionals as a major barrier to later recruitment.
- Creating vocational roles for vulnerable populations to allow them contribute to REDD+ data gathering in such fields as surveying.

TABLE 9. DO3 SPECIFIC ACTIONS AND EXTENT TO WHICH EXISTING IRS RESPOND TO BIODIVERSITY AND FOREST CONSERVATION

Development Objective or Intermediate Result	Actions necessary to achieve conservation of tropical forest and biodiversity (Illustrative Examples)	Proposed Actions Alignment with Mission Indicators	Extent to which the DO or IR will contribute to sustainable management and conservation of tropical forests and biodiversity
<i>DO3: Improved learning outcomes</i>			
<i>IR3.1 Increased achievement in basic education, particularly in early grade reading</i>	<i>None identified</i>	<i>None identified</i>	<i>None identified</i>
<i>IR3.2 Improved workforce skills development</i>	<p><i>Invest in developing a climate-smart work force to support CRGE objectives, particularly those that can work at the zonal and woreda level.</i></p> <p><i>Provide support to university and certificate curriculums for climate change specialists (e.g., the Wondo Genet program), and cross-link to GoE staffing support plans for CRGE.</i></p>	<p><i>EG.3.2-2 EG6.1, EG6.2, EG6.3</i></p> <p><i>ES2.1-2.2 EG.3.2-2 EG6.1, EG6.2</i></p> <p><i>ES2.1-2.2 EG6.2</i></p>	<i>This IR develops skills in the workforce, including vulnerable populations, which contributes to the diversification of livelihoods and draws interest away from resource-intensive agriculture and pastoralist livelihoods. The development of alternative livelihoods contributes directly and indirectly to forest conservation and preservation of biodiversity.</i>

9.4 SUPPORT OBJECTIVE—IMPROVED GOVERNANCE ENVIRONMENT FOR SUSTAINABLE DEVELOPMENT

Support capacity building, training, and logistics for ESIA enforcement and environmental management plan monitoring at the zonal and woreda level, as ESIA follow-up and review are minimal.

ESIA provides a safeguard and oversight mechanism for protection of biodiversity and conservation of forests, especially in sensitive and critical habitats. Under USAID/Ethiopia’s Support Objective (SO), USAID is targeting weak governance and narrow and exclusive policy, legislation, and monitoring. Although somewhat of a stretch for current targets of this SO, the need for improved natural resource governance through the ESIA process fits logically under the intent of this SO. Because ESIA is an important regulatory and oversight mechanism for new development in all sectors, it is also important for programs under DO1, where USAID is building capacity for oversight within government and civil society institutions.

Environmental Impact Assessment Proclamation No. 299 was adopted in 2002 but has not been well integrated into development planning (Gubena, 2016). Numerous accounts tell of large-scale economic projects proceeding with no ESIA procedures whatsoever (Tsion, 2008; Dantie and Bayou, 2008). Ethiopia has made strides to strengthen and formalize its ESIA policy; however, with recent increases in development,

further strengthening the ESIA process should be a priority. Based on field visits and interviews with stakeholders and a recent review of gaps and challenges in ESIA (Gubena, 2016), there are a number of areas where USAID could engage.

USAID could contribute to the following:

- Providing support for updates to the ESIA proclamation—including climate change integration—to make it relevant to modern development and responsive to current business licensing procedures. A revised proclamation should address processes for both private development and GoE projects. Currently, most business permits do not go through an environmental review because the Investment Proclamation has no ESIA requirement, although when the Zonal Environmental Protection Offices are responsible for licensing, they do ensure that ESIAs are in hand.
- Supporting capacity building and staffing for ESIA specialists at the local level. Once a project commences, the Zonal Environmental Protection Offices do not have the resources to follow up on enforcement and oversight of ESIA. This also applies to GoE-funded projects where the federal environmental authorities, rather than the regional, oversee the project.
- Developing a system to make the public stakeholder participation process in ESIA more transparent and inclusive, as well as supporting a database or publicly available site for sharing ESIAs more formally with the public.
- Supporting research and data collection to map and monitor underground water resources, enabling sustainable extraction for agriculture. These data would typically be required per international ESIA regulations for any large-scale irrigation development.
- Fostering communication and task-sharing between the federal offices and the regional offices.
- Providing logistics and infrastructure support for offices, computers, vehicles, and GPS devices for full implementation of the ESIA process. Data collection and reporting are also not on par with international practices. There is no database system for capturing monitoring records or site details.

TABLE 10. SO SPECIFIC ACTIONS AND EXTENT TO WHICH EXISTING IRS RESPOND TO BIODIVERSITY AND FOREST CONSERVATION

Development Objective or Intermediate Result	Actions necessary to achieve conservation of tropical forest and biodiversity (Illustrative Examples)	Proposed Actions Alignment with Mission Indicators	Extent to which the DO or IR will contribute to sustainable management and conservation of tropical forests and biodiversity
<i>SO Improved Governance Environment for Sustainable Development</i>			
<p><i>SO IR1: Increased resilience and adaptation to manage conflict</i></p> <p><i>SO IR2: Strengthened accountable governance</i></p>	<p><i>Support capacity building, training, and logistics for enforcement of ESIA and environmental management plan monitoring at the zonal and woreda level, as ESIA follow-up and review are currently minimal.</i></p>	<p><i>EG.3.1-12 EG6.2, EG6.3 EG10.2-5, EG10.2-6</i></p>	<p><i>This SO contributes directly to the conservation of forests and biodiversity through improved governance of natural resources while reducing conflict. The work with pastoralists on PFM and CBNRM promote best practices for sustainable use while meeting immediate demands of the community.</i></p>

10. COLLABORATION WITH GOVERNMENT, NGO AND OTHER DONOR PROGRAM ACTIVITIES

In Ethiopia, biodiversity and tropical forests conservation, environmental protection, and climate change adaptation and mitigation are all supported by different actors. Annex B provides a full list of potential partners that USAID can collaborate with. The table below summarizes which actors USAID should work with to implement the strategic recommendations and ultimately help achieve Development Objectives and Intermediate Results as described in Section 9.

TABLE 11. ORGANIZATIONS ALREADY WORKING WITHIN THE CONTEXT OF THE STRATEGIC RECOMMENDATIONS

STRATEGIC RECOMMENDATIONS	KEY GOVERNMENT AND NON-GOVERNMENTAL INSTITUTIONS USAID CAN/SHOULD WORK WITH TO ACHIEVE DEVELOPMENT OBJECTIVES AND INTERMEDIATE RESULTS
<p>1. Contribute to implementation of GTP and CRGE objectives, particularly by assisting with a framework for monitoring and evaluation.</p>	<p>Ministry of Environment, Forests, and Climate Change Ministry of Agriculture, Natural Resources Directorate UNDP REDD+ Working Group National Planning Commission</p>
<p>2. Provide capacity building, institutional support, and logistics to help regional/local authorities implement their mandate.</p>	<p>Ministry of Environment, Forest and Climate Change Ministry of Science and Technology German Technical Cooperation (GIZ) DFID Wildlife Conservation Society (WCS) Frankfurt Zoological Society Peace Corps OFWE, Farm Africa, SOS Sahel CIFOR Wageningen University Regional Governments and City Councils</p>
<p>3. Strengthen land tenure, land certification, and land use planning. Identify values for rangeland, forest, and wetland ecosystem services.</p>	<p>Prime Minister's Office Ethiopian Mapping Agency (EMA) Ethiopian Civil Society Network on Climate Change (ECSNCC) (civil society working group on climate change with relative investment in reducing deforestation) LEM, the Environment and Development Society of Ethiopia (advocates and builds awareness on sustainable land use at</p>

TABLE 11. ORGANIZATIONS ALREADY WORKING WITHIN THE CONTEXT OF THE STRATEGIC RECOMMENDATIONS

STRATEGIC RECOMMENDATIONS	KEY GOVERNMENT AND NON-GOVERNMENTAL INSTITUTIONS USAID CAN/SHOULD WORK WITH TO ACHIEVE DEVELOPMENT OBJECTIVES AND INTERMEDIATE RESULTS
	<p>the local level via grass-roots community-driven efforts)</p> <p>CIFOR</p> <p>Agricultural Transformation Agency</p> <p>Regional Land Administration Bureaus</p>
<p>4. Promote development and diversification of the economy through support to SMEs; focus on green business and banking solutions.</p>	<p>Environment and Coffee Forest Forum</p> <p>Oromia International Bank or lenders offering similar Sharia-compliant products</p> <p>World Bank SME Project</p> <p>ENAT Bank (USAID SME partner)</p> <p>Forest Connect</p> <p>Federal Cooperatives Agency (Ministry of Agriculture and Natural Resources)</p> <p>Agricultural Cooperatives (previously supported through USAID Agricultural Cooperatives in Ethiopia Project)</p>
<p>5. Continue to promote CBNRM and PFM/PRM that includes payment for ecosystem services, moves toward minimum standards for REDD+ accounting, and finds mediated approaches for adherence to mutually agreed-upon use of natural resources.</p>	<p>Ethiopian Orthodox Church (EOC) Forests</p> <p>Ministry of Culture and Tourism, Ethiopian Wildlife Conservation Authority (EWCA)</p> <p>Ethiopian Biodiversity Institute (EBI)</p> <p>African Parks Network</p> <p>African Wildlife Foundation (AWF)</p> <p>Ethiopian Wolf Conservation Project (EWCP)</p> <p>NABU (Nature and Biodiversity Conservation Union)</p> <p>International Institute for Environment and Development (IIED)</p> <p>Wageningen University</p> <p>CIFOR</p> <p>Organizations with vetted PFM implementing experience: Farm Africa, SOS Sahel, GIZ</p>

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12. ANNEXES

ANNEX A: STAKEHOLDERS CONSULTED

The assessment team met with Government of Ethiopia Ministry staff at the Federal and Regional levels, small business owners, Regional NGOs, international donors, university professors. Also met with park rangers/staff. The Team also met with USAID staff in Washington and USAID/Ethiopia staff and some Implementing Partners

NAME	ORGANIZATION	ROLE
7 July		
Vince Uhl	VA Associates	Groundwater/Irrigation Specialists
8 July - Meetings with USAID/Washington Staff		
Walter Knausenberger	USAID Africa Bureau	Sr. Reg. Environmental Policy Advisor
Hadas Kushnir	USAID Forestry and Biodiversity Office	Biodiversity and Natural Resources Specialist
Alex Apostos	USAID	GCC Advisor
Lucy Gibbon	USAID AFR	Climate Change Advisor
Moffat Ngugi	USAID/BFS	Climate Change and Environment Specialist
13 July 2016 - UNDP Discussion on Mainstreaming Biodiversity		
Naeeda Crishna Morgado	OECD	Green Growth, Climate Change and Development
Sayuri Teramoto	JICA	Agriculture Sector Advisor
Samuel Bwalya	UNDP	Country Director Ethiopia
Megha Sud	Climate, Biodiversity, and Water Division	
Name Unknown	European Union	
14 July 2016 - USAID In-briefing and meetings with technical staff		
Dennis Weller	USAID	Ethiopia Mission Director
Abigail Jone	USAID	Ethiopia Climate change
Alex Apotsos	USAID	AFR Climate Change
Amber Bechtel	USAID	Program Officer
Robert Lopez	USAID	Ethiopia Supervisory Program Officer
15 July 2016		
Dr. Kebede	Addis Ababa U	Hydrogeologist
17 July 2016		
Abdou Dieng	United Nations World Food Program	Regional Director
18 July 2016 - Consultative Workshop on Tropical Forestry and Biodiversity Assessment and Climate Risk and Opportunities Assessment		
Dr. Habtemariam	kASSA-Center for International Forestry Research (CIFOR)	

NAME	ORGANIZATION	ROLE
Dr. Tadesse Wonemariam	Environment and Coffee Forest Forum (ECFF)	Director
Mr. Sisay Nune	Royal Norwegian Embassy	Program Officer for Natural Resources Management/Environment and Food Security- - sisay.nune.hailemariam@mfa.no
Dr. Girma Balcha	Climate Change Forum of Ethiopia	Director
Yilma Dabebe	Ethiopian Wildlife and Natural Heritage Society (EWNHS)	
Mr. Leyekun Abune	Independent	Wildlife <u>CONSULTANT-</u>
Invited, but did not attend:		
Mr. Didhaa Diribaa Ayane	Oromia Forest & Wildlife Enterprise	Director General
Dr. Birhanu Mengesha	OFWE	Participatory Forest Management Advisor
Mr. Tsegaye Tadess	Bale Mountains Eco-region REDD+ Project--tsegaye.tadesse@gggi.org	Head
Mr. Yitebetu Moges	GoE	Ministry of Environment, Forest and Climate
Dr. Gemedo Dalle	Institute of Biodiversity Conservation and Research -gemedod@yahoo.com gemedod@ibc.gov.et	Director General
Dr. Gete Z.eleke	Water and Land Resources Center in Ethiopia-gete.z@wlr-eth.org	Director
Mr. Yacob Wondimkun	World Bank	Water Resources Engineer
Dr. Zemen Haddis	USAID-zhaddis@usaid.gov	
Dr. Araya Asrat	Horn of Africa Regional Environment Centre & Network -arayaa@hoarec.org	Director
Mr. Million Belay	Movement for Ecological Learning and Community <u>Action-melca@ethionet.et</u>	Director
Mr. Tadesse Hailu	EWCA-tadess.hailu@pheethiopia.org	Wildlife Expert
Mr. Kumera Wakjira	EWCA -matikume@yahoo.com	National Parks and Sanctuaries Coordination Directorate -
Mr. Yeneneh Teka	Regional Environmental Office for East Africa-TekaYL@state.gov	Regional Environment Specialist
Dr. Fanuel Kebede	General of Ethiopian Wildlife Conservation <u>Authority-fanuel.kebede@gmail.com</u>	Advisor for the Director
Mr. Shimeles	UNDP	
Dr. Zewdu Eshetu	zewdu.eshetu@gmail.com	
Mr. Negash Teklu	PHE- negash.teklu@phe-ethiopia.org	
18 July 2016		
Gessesse Dessie	GoE	MEFCC
Timnit Woldeghiorgis	GoE	MEFCC

NAME	ORGANIZATION	ROLE
19 July 2016		
Asefa Belay	Environment Forestry and Wildlife Authority	Director General
20 July 2016		
Unknown	EverGreen Dairy Production	Livestock keeper, small business owner
Unknown	local small women-owned business	Interim Manager
Belayneh Azene	Bahir Dar Environment and Forest Research Center	Director
Gethachew Gebeyehu	Biodiversity Center	Director
Biresaw Mahtot	Amhara Forest Enterprise	Deputy Manager
Dr. Yoseph Malka	Wondo Genet School of Natural Resources - Shashamene	Professor
Dr. Yong-Gill Kim	Wondo Genet School of Natural Resources - Shashamene	Professor
Belayneh Baramo Barreta	Bureau for Environmental Protection and Rural Development- Hawassa	Deputy Director and Process Owner
Samuel Kekebo Oda	Bureau for Environmental Protection and Rural Development - Hawassa	General Director
21 July 2016		
Getachew Alamon	Natural Resources Management Project Manager - Mobile (0918142006)	
Kelemework Asfaw	Livestock Market Development Project Manager ORDA	
Mesfin Gugsu	GIZ – Hawassa	General Manager
Tamrat Selanu	SOS Sahel - Hawassa	
Biruk Tsegaye	SOS Sahel - Hawassa	Woreda Field Officer
Temesfen Zanu	SOS Sahel - Hawassa	Project Manager/Business Expert
Unknown	Lake Hawassa	Fisherman
Dr. Tedese Amsalu	Bahir Dar University, USAID LAND and EthioLandNet	Professor Land Tenure
22 July 2016		
Obboo Abdujawaad Hasan Jaaraa	Rural Land and Environmental Protection Bureau - Robe	General Director
Kefa Feye	Rural Land and Environmental Protection Bureau - Robe	Monitoring and supervision of development projects and NRM
Asseye Hundre	Rural Land and Environmental Protection Bureau - Robe	Team Process owner for environmental protection
Tesfaye Deurissde	Rural Land and Environmental Protection Bureau - Robe	Agriculture resource economist
Toloja Tofie	OFWE - Robe	Forestry Land Expert
Kanea Dida	OFWE - Robe	PFM Expert
Gizewerk Berhanu	Biodigester	Beneficiary

NAME	ORGANIZATION	ROLE
23 July 2016		
Yvonne and Guy Leverne	Bale Mountain Lodge	Lodge Owners
Oweal	Bale Mountains National Park	Scout – Rira community
Neville Slade	Frankfurt Zoological Society	Project Director
Shamille Kadir	Bale Mountains National Park – Ethiopian Wildlife Authority	Game Warden
Semalega Belay	PCI Revive	Deputy Chief of Party
Addis Abebe	PCI Revive	PFM Expert
Eyob Gugussa	PCI Revive	DRR Expert
25 July 2016		
Samuel Bwalya	UNDP	Country Director Ethiopia
Unknown	Ministry of Finance	CRGE Facility Coordinator
Jermal Abameoha	Zonal Environmental Protection Office - Bonga	Head of Environmental Protection and Forestry
Asaye Alemayehu	NABU Bonga Project	NRM Officer
Terefe Teka	Zonal Environmental Protection Office - Bonga	Biosphere reserve expert
Mesfin Tekle	NABU	Local Coordinator
Tatek Kebede	Zonal Environmental Protection Office - Bonga	Work Process Coordinator
Abadir Abapisd	Zonal Environmental Protection Office - Bonga	Environmental Pollution Control and Monitoring
Eyasy Gurgus	Zonal Environmental Protection Office - Bonga	Work Process Coordinator
Tarikua Takele	Zonal Environmental Protection Office - Bonga	Biodiversity Development and Protection
Unknown	NABU	Ranger
Unknown	NABU	Nursery Attendants

ANNEX B. INSTITUTION DESCRIPTIONS

FEDERAL LEVEL INSTITUTION

TABLE 12. INSTITUTION DESCRIPTIONS: FEDERAL LEVEL

INSTITUTION	DESCRIPTION OF THE ORGANIZATION
Ministry of Agriculture and Natural Resources	In 2016 the Natural Resources Management set up under Ministry of Agriculture and Natural Resources Works on watershed and small scale irrigation management. Within the team there is a Climate Change Unit to coordinate the agricultural sector climate-resilient Green Economic Growth (CRGE) activities. Also there is a coordination Unit for Sustainable Land Management Program of Ethiopia (SLMP).
Ministry of Culture and Tourism, Ethiopian Wildlife Conservation Authority (EWCA)	Established in 2008 following Wildlife Proclamation under Ministry of Tourism with mandate to manage Ethiopian protected areas. EWCA managing 9 of total 21 National Parks. Remaining 12 managed by Regional Governments. Only two Parks currently gazetted at Federal level (Awash and Semien Mountains).
Ministry of Science and Technology	Responsible for all biosphere reserves in Ethiopia.
Ethiopian Mapping Agency (EMA)	EMA is producing a National Atlas of Ethiopia. Publication was expected before end 2012. EPA commissioned 'Ethiopia Potential Areas for Clean Development 2009-2010'. - Available from EMA. Satellite maps of protected areas and land uses Currently EMA has satellite imagery from 2005-2006 of the whole country at very low resolution (1 km) in black and white. EMA can also provide high resolution satellite maps (0.5m, 2.5m and 5m) to order from 2005-2006. Intergovernmental Authority on Development (IGAD) Climate Prediction and Application Centre in partnership with Ethiopian Mapping Agency has identified pilot Natural Habitat Conservation pilot case study. Bulletins and maps to be produced for three protected areas (Arsi Mountains NP, Awash NP and Yangudi Rassa NP). The pilot to include training for Government representatives including Environmental Protection Authority (EPA), and EWCA. Food and Agriculture Organisation (FAO) currently inviting funding for 2011-2012 Land Use satellite map for the whole country.
Ministry of Environment, Forest and Climate Change	With support from the UK, the Global Green Growth Institute and the UNDP, the Ministry has developed and is coordinating Climate-Resilient Green Economy (CRGE), a strategic framework. Federal to Regions sectoral planning has been completed with different Ministries including Water, Energy, Agriculture. The plan has two major parts: <ul style="list-style-type: none"> • Adaptation (climate-resilient) • Mitigation (green economy) Currently, the Ministry is developed the National Forest Sector Development Action Plan with the financial support of Norway and technical support from UNEP through a consulting company of Germany called UNIQUE. The draft document was presented and discussed among stakeholders during a stakeholders' consultative workshop conducted last 5-6 August 2016.
Ethiopian Biodiversity Institute (EBI)	Established as Institute of Biodiversity Conservation in 1998 (had originally been Plant Genetics Resources Centre that was formed in 1976). Recently, established as Ethiopian Biodiversity Institute of (EBI) has a mandate of conservation and sustainable utilization of all forms of biological resources including plants, animals and microbial genetic resources and indigenous knowledge. Formerly it was accountable to Ministry

TABLE 12. INSTITUTION DESCRIPTIONS: FEDERAL LEVEL

INSTITUTION	DESCRIPTION OF THE ORGANIZATION
	<p>of Agriculture. Currently, however, it is linked to the MEFCC. The Institute consists of five key processes (Directorates), namely: crop and horticulture Biodiversity directorate, Animal Biodiversity directorate, Microbial Biodiversity directorate, Forest and range land plants Biodiversity directorate and Genetic Resources access and benefit sharing directorate; and five support processes, namely: Public Relations, education and Communication directorate, Finance, Procurement and Property Administration directorate, Internal Audit directorate, Plan & Program directorate and Human Resources Development and Administration directorate.</p> <p>The Institute establishes seven (7) additional biodiversity centers in Metu, Hawasa, Harer, Mekele, Goba, Bahirdar and Asosa, two botanical gardens in Jimma and Shashemene and Fiche duplicate gene bank to enhance the accessibility of biodiversity conservation and research.</p> <p>The Director General (DG) leads the institute which supported by management committee. The Management Committee consists of all directorate directors. Continues to expand gene banks, develop scientific strategies for conservation, sustainable utilization and access. Promotes increase in situ conservation areas and work to protect ecosystems.</p>
Livestock State Ministry	<p>Within the Ministry of Agriculture and Natural Resources intended to focus on the livestock sector due to its importance in the GTPII and the minimal actual gain in the sector. Established in 2013, the Ministry targets policy and strategic direction as well as builds on the experience of other countries, to grow the livestock sector. Core activities include scaling up good practices to increase productivity, preventing animal disease, supporting the private sector and contributing to linkages to private enterprise, development of pastoralists' lands, and collaboration with research institutions.</p>

REGIONAL LEVEL

Currently some of the regions are establishing institutions mandated to develop, protect and sustainably utilize the natural resources, biodiversity conservation and environmental protection although in different forms and names. For example, Amhara established Environment, Forest and Climate Change Authority which mainly has a regulatory function; while there are Amhara Forest Enterprise and Amhara Wildlife Conservation Authority. SNNPR has already established Environmental Protection and Natural Resources Bureau while Oromia state is expected to establish Environmental, forest and Climate Change Bureau soon. The responsibility of Environment and forest in other regions, still rests within the institutions responsible for agriculture and livestock. Biodiversity and Forest research centers are also being established at regional levels.

- Regional development associations (Amhara Development Association, Tigrayan Development Association, Southern Ethiopian Peoples Development Association, and Oromo Development Association)
- Relief Society of Tigray
- Development and Interchurch Aid Commission
- Climate Innovation Center
- Environmental Development Action (ENDA)-Ethiopia
- Ethiopian Wildlife and Natural History Society
- Ethiopian Wolf Conservation Programme
- Forum for the Environment
- Institute for Sustainable Development

- Horn of Africa Regional Environment Centre and Network
- LEM Ethiopia (Environment and Development Society of Ethiopia)
- Movement for Ecological Learning and Community Action (MECLA)
- Pastoralist Forum Ethiopia
- Population, Health, and Environment (PHE)
- Mecen fur Mecen
- Tena Kebena and
- Sustainable Land Use Forum(SLUF)

WILDLIFE CONSERVATION INSTITUTIONS, ORGANIZATIONS AND PROJECTS

TABLE 13. WILDLIFE CONSERVATION INTERNATIONAL NGOS

KEY PARTNER THAT USAID SHOULD WORK WITH	KEY PARTNER THAT USAID SHOULD WORK WITH
African Parks Network	<p>Originally African Parks PLC had management contract for Omo NP and Nech Sar NP. Contract ended. Recently considering re-registering to develop a program in Gambela. They will consider working in Gambela if various discussions and agreements with Gov made. Tractor purchased and donated for Gambela community.</p> <p>Activities & Achievements</p> <ul style="list-style-type: none"> • October 2012 – Established a permanent HoA-REC&N Branch Office in Gambela Town. • April 2013 –HoA-REC&N and EWCA started a three-year collaring operation to track, via GPS, the movements of 43 White-eared-kob (18 animals collared by EWCA, 25 animals collared by HoA-REC&N), 4 Nile lechwe (all collared by HoA-REC&N), and four elephants (all collared by HoA-REC&N). Location data is received four times a day for the elephants and six times a day for the other animals. This activity will provide valuable information about these species movement patterns and which areas are key resource areas, and inform the land use plan and location of PA's. As migration routes cross the border, it will also highlight the importance of collaboration between South Sudan and Ethiopia. • March – June 2013 – Landscape and ecosystem assessments and studies started, including an aerial census (sample and total counts) of key wildlife species to monitor population trends and map distribution patterns, and aerial surveys to map the vegetation and current land use. • June 2013 – Several Interviews with local communities and other local stakeholders carried out. • Ongoing – Aerial reconnaissance and surveillance trips undertaken to identify and map key areas of interest and to understand and monitor animal and human activities. • Ongoing – PR aerial tours for officials, donors, and delegates to help create awareness about the need for land use planning as well as garner support for biodiversity management.
African Wildlife Foundation (AWF)	Visited Ethiopia early 2011 and March 2012. Showed interest particularly in Simien mountains NP. Discussed helping relocation of families living within the Park. Estimated \$8 million required.
Born Free Foundation	International NGO. Established in 2007. Developing Wildlife Rescue Centre

TABLE 13. WILDLIFE CONSERVATION INTERNATIONAL NGOS

KEY PARTNER THAT USAID SHOULD WORK WITH	KEY PARTNER THAT USAID SHOULD WORK WITH
Ethiopia	<p>near Holeta. Once completed, the center will be open to public.</p> <p>Programmes :</p> <p>1. Wildlife Rescue: Key objective to rescue captive wildlife from existing poor captive facilities depending on space available and funding. Centre may also take wildlife confiscated by EWCA.</p> <p>2 Environmental Education</p> <p>3 Conservation Key priority is to stop illegal wildlife trade. In the future will support wildlife conservation in-situ especially large carnivores.</p>
Frankfurt Zoological Society (FZS)	<p>International NGO. Established in 2004. Overall objective: To conserve Ethiopian Afro Alpine Ecosystem. Work includes ecological monitoring, management support for protected areas, capacity building of park staff and communities, community based conservation, development of ecotourism</p> <p>Four programmes:</p> <p>1. Bale Mountains Conservation Project (BMCP) Working with EWCA. Finalizing and implementing Park Management Plan including Improving park infrastructure, intensifying park protection, helping demarcation, developing environmental education for youth. Produced Bale Mountains National Park Business and Sustainable Finance Plan 2011-2016</p> <p>2. Afro-Alpine Ecosystem Conservation Project (AACP) Major partner Amhara Culture, Tourism and Parks Bureau. Working in three locations:</p> <ul style="list-style-type: none"> • Guassa Community Conservation Area • Abuna Joseph Community Conservation Area (partner with TESFA) • Simien Mountains NP (Management Plan partially being implemented) <p>3. Community Afro-Alpine Monitoring Project (CAMP) Awareness-raising project helping communities take responsibility for land. Communities report back to their own community on state of biodiversity.</p> <p>4. Hunting for sustainability (HUNT) Looking at social, cultural, ecological impact of hunting. A fact finding research project working with EWC FZS has produced several publications including: Business Plan Development Tool for Protected Area Managers in Ethiopia.</p>
Wildlife Conservation Society (WCS)	<p>WCS is considering support of Gambela NP. WCS helped with aerial surveys and met with EWCA, African Parks and HoAREC in Dec 2011. EWCA agreed with WCS support. WCS is interested to develop a joint partnership between South Sudan and Ethiopia and will try to arrange high level meeting. WCS would either finance existing Ethiopian NGO or would register as International NGO and manage its own project.</p>

TABLE 14. WILDLIFE CONSERVATION LOCAL NGOS

NAME	MAJOR FUNCTIONS
<p>Ethiopian Wildlife and Natural History Society</p>	<p>Two main program areas:</p> <ol style="list-style-type: none"> 1. Environmental Education and Awareness Creation 2. Conservation of biodiversity Environmental Education <p>Targets three groups: High School, EWNHS members, general public. Produces range of publications, including: 'A Glimpse at Biodiversity Hotspots of Ethiopia' (2010), Bi-annual newsletter/Since 1992, has published annual 'Agazen' school supplementary reading magazine to raise awareness of environmental problems in Ethiopia.</p> <p>Conservation of biodiversity</p> <p>Birdlife International Partner in Ethiopia. One of endemic bird areas in Ethiopia is Borana Rangeland (incl.Nechsar NP), part of Geralle NP and Yabello NP. EWNHS working in Yabello NP. Funded thro Bird Fair in UK via Birdlife. 6 southern endemics (Liben Lark, Prince Ruspoli's Turaco, Salvadori SSerin, Nechsar Nightingale, White-tailed swallow, and Ethiopian bushcrow.</p> <p>EWNHS also providing technical back up for park management. EWNHS establishing site support group in Abijata Shala NP, using livelihoods improvements (incl. cattle fattening, vegetable farming and tree nurseries) through biodiversity conservation and sustainable use of natural resources. Funded by Spanish Agency for International Development (AECID)</p> <p>Other projects include:</p> <p>Forests for Food in Debre Birhan (distributing tree seedlings to farmers, schools, churches, monastries, government institutions and NGOs.</p> <p>Crane research and education project at Lake Tana</p> <p>Sustainable tourism project in Lepis, East Langano and Ziway as Coordinating Local Implementation Partner for ESTA program. Project including demarcating sites, community training and education.</p> <p>Tara Primate Rescue Centre Trees for Cities, funded by UK charity Trees for Cities, distributed apple seedlings to sites around Addis Member of the EAEN: Eastern Africa Environmental Network.</p>
<p>Tara Primate Rescue Centre</p>	<p>Original Centre in Gondar closed Dec 2009 and gelada baboon released into Lemo Limo Nature Reserve (Simien). Centre to rescue monkeys and donkeys reopened in Jan 2010 in Dib Bihar north of Debarak</p>
<p>Wildlife Conservation and Environmental Development Association of Ethiopia (WILDCODE)</p>	<p>Set up to save Grevy Zebra and other rare species Some funding from STN in Netherlands for Sinkele Funding from Netherlands Embassy through EWHNS. Direct funding from The Christenson Fund.</p>
<p>Wildlife for Sustainable Development (WSD)</p>	<p>Project in Babilie Elephant Sanctuary</p> <p>Current Projects:</p> <p>Collecting lion feces and bone samples. Also working in Awash NP Revising Park Management Plan Assisting Boundary demarcation Babilie boundary demarcation completed. Sanctuary management plan completed and submitted to EWCA. Park expert, warden and ranger training completed. Successfully campaigned to stop Ecoflower palm oil plantation.</p>

TABLE 15. WILDLIFE CONSERVATION PROJECTS

Name of Project	Main activities
Ethiopian Wolf Conservation Project (EWCP)	<p>Project sponsors include Wildlife Conservation Network and Born Free Foundation. Working in following protected areas where Ethiopian Wolf found:</p> <ul style="list-style-type: none"> • Bale Mountains NP • Borena Sayut NP • Arsi Mountains NP • Semien Mountains NP • Guassa Menz Community Conservation Area • Abuna Yoseph Community Conservation Area <p>Conservation project work includes:</p> <ul style="list-style-type: none"> • Education of communities • Monitoring of wolf population • Reactive disease program <p>(Trials support for oral vaccines for both wolves and the local dogs that transmit Rabies and canine distemper to wolf population)</p> <ul style="list-style-type: none"> • Training Scouts • Ecotourism Development

ENVIRONMENT CONSERVATION INSTITUTIONS, ORGANIZATIONS AND PROJECTS

TABLE 16. ENVIRONMENT PROTECTION INTERNATIONAL NGOS AND BILATERAL INSTITUTIONS

German Technical Cooperation (GIZ)	<p>GIZ obtained 3 million Euro from German Ministry of Development Rainforest Reserve PFM project for 3years. Funding started July 2013 and will end at end of December 2018. Project is being implemented in association with Sustainable Land Management Program through Ministry of agriculture, Ministry of Environment, Forest and climate Change in 4 regions(Amhara, Oromia, Tigray and SNNPR): The project objective is to upscale PFM. Approach to watershed areas in SLMP and improve capacity of partner government institutions and communities in forest-based income generation (beekeeping, ecotourism-tree seed collection, highland fruit trees development, etc.).</p>
FARM AFRICA/ SOS Sahel	<p>International NGO. Following a successful pilot Participatory Forest Management (PFM) project FARM Africa in partnership with Local NGO SOS Sahel started a 5 yr scale-up project 'Strengthening Sustainable Livelihoods Forest Management Programme' (SSLFMP) in 2010 with Euro 3 million funding from EU. FARM Africa and International Institute for Environmental Development (IIED) supplying part of required 20% matching funding. Project working in the following National Priority Forest Areas:</p> <ul style="list-style-type: none"> • Horena Forest (Bale Mountains) (Oromiya) • Alosha Bate (Oromiya) • Anferara Wadera (Oromiya) • Saylem Wangus (Oromiya) • Gerjeda (Oromiya) • Kahtassa (Amhara) • Ambessa Chaka (Benishangul Gumaz) • Bonga (SNNPR) • Sheko (SNNPR) <p>Project working with PFM, Improvement of forest-based livelihoods and Policy Support. Currently, it is actively working with OFWE un the development of REDD+ initiatives for Bale Eco-region Reserve.</p>

TABLE 16. ENVIRONMENT PROTECTION INTERNATIONAL NGOS AND BILATERAL INSTITUTIONS

Heinrich Boll Stiftung	International NGO. Provides funding support for NGOs operating in Ethiopia. Including: <ul style="list-style-type: none"> • Forum for the Environment • Population Health Environment (PHE) • Melca Ethiopia
Michael Succow Foundation	Awarded Euro 1.6m from German Federal Ministry for Economic Cooperation and Development to support Lake Tana Biosphere Reserve through NABU
NABU (Nature and Biodiversity Conservation Union)	International NGO. Registered 2010. . As part of Climate Protection and Preservation of Primary Forests Project, NABU working to preserve several sites in Ethiopia. Funded by the International Climate Initiative (ICI) from the German Ministry for Environment, Nature Conservation and Nuclear Safety. Working in: <ul style="list-style-type: none"> • Kaffa Forest Coffee Biosphere, second phase project 2013-2017 • Lake Tana Biosphere Reserve, 4 yr project. Kaffa Project In partnership with Regional Government, Kaffa Forest Coffee Cooperation Union, Ethiopian Wildlife and Natural History Society. Work areas include: <ul style="list-style-type: none"> • Forestry: PFM, reforestation, monitoring • Alleviate poverty: Business development (plan produced and it includes Ecotourism. (Especially Coffee Tourism. A National Coffee Museum being built in Bonga. Visitor lodge and biosphere information center built in 2012). Will also include REDD (study in hand) • Advocacy (30 trained rangers raising awareness within local community) • Clean Energy (local people trained and manufacturing energy saving stoves) energy efficient stoves. Over 6,000 already distributed) Lake Tana (support from German Development Cooperation)
Welt Hunger Hilfe GAA (German Agro Action)	International NGO. Has been working in Ethiopia for over 30 years. Funding from EU, German and US Governments and other private donors. Works on Natural Resource Management projects in Afar, Borana and North Oromiya. Also has water, sanitation and hygiene projects. Partner with Organization of Rehabilitation and Development in Amhara (ORDA) on Biodiversity Program in Lowland and Highland Amhara forests. Specific objective, conservation and management of biodiversity in community managed forests. Working in: <ul style="list-style-type: none"> • Lowland Forests along Sudanese border (Quara and Meterna and Alatish). • Highland Forests: Church Forests (Estie, Farta, Lay Gayint).

TABLE 17. ENVIRONMENT PROTECTION LOCAL NGOS

NAME	ACTIVITIES
Centre for Indigenous Trees, Propagation and Biodiversity Development in Ethiopia	Forestry, nursery and demonstration of soil indicator species.
Environment and Coffee Forest Forum	Work includes proposing Biosphere Reserves to UNESCO. Objective is to create zoned areas where communities sustainably manage and protect environment. Some funding from NABU. Other sponsors/donors include ILLY Coffee, VW Foundation, German Ministry of

TABLE 17. ENVIRONMENT PROTECTION LOCAL NGOS

NAME	ACTIVITIES
<p>Ethio Wetlands and Natural Resources Association (EWNRA)</p>	<p>Environment</p> <p>Wetland research 3 yr Euro 400,000 project started 1997 with Geography and Biology Dept of University of Addis Ababa and Huddersfield, UK. In 2000, registered as EWNRA. Initially started with wetland management, but now includes ‘upstream’ projects as wetlands can only be saved if upstream areas sustainably managed. 6 Main Projects: 1. Ilu Aba Bora, Oromiya Region Started 2005. Close to Yayu Biosphere Reserve. Funding from Swedish SIDA, Norwegian Dev Fund, Wateraid Ethiopia 2. Fogera Area Started 2005. Close to Bahir Dar and Lake Tana. Sustainable wetland management of Fogera floodplain that was threatened by human interference. Funding from Finland Embassy and Self Help Africa 3. Gibe Dam Area Micro-watershed very silted. EPA funded one year project to demonstrate soil management. 4. Dilla Started in 2010. Funding from Green Mountain Coffee Roasters in USA who buy coffee and provide funding via Catholic Relief Service. Livelihood based project supporting coffee farmers and helping find alternative livelihood projects to supplement community’s income. 5. Wild Coffee Conservation by means of Participatory Forest Management Sheko Wereda of Bench-Maji zone in SNNPR. Started 2010. Funded by EU (80% from EU and 20% HOAREC) 6. Non-Timber Forest Products and Participatory Forest Management Research and Development Project (NTFP-PFM) Project with Huddersfield University, UK. Sheka, Kefa and Bench-Maji zones. NTF products include honey, spices, forest coffee, sustainable timber</p>
<p>Ethiopian Heritage Trust</p>	<p>Developing a natural park on the southeast facing slopes of Mt Entoto. One of long term goals is to replace Eucalyptus plantation with indigenous trees and shrubs. Tree nursery established on 3.5 hectare site to grow 22 species of indigenous trees Master management plan completed to include Visitor Centre, Guest House, Student Research Centre funded by Addis Ababa Municipality. Grant form UNICEF. Project concept to create ‘Green Generation’ of children with children planting trees that grow as they grow. Eucalyptus already removed from 700 hectares of site and indigenous trees planted. 19 springs have re-emerged since</p>
<p>Forum for the Environment (FfE)</p>	<p>Advocacy and Communication of environmental issues through workshops, capacity building, training, website, film documentaries and publications. Five thematic areas: 1. Forestry 2. Protected Areas 3. Sustainable Renewable Energy 4. Urban Environment 5. Climate Change FfE has set up seven regional local groups in the following regions: Amhara, Tigray, Dire Dawa, SNNPR, Gambela, Beneshengul, Oromiya. These local groups work on Communication and advocacy of local environmental issues. FfE hosts and is the secretariat and co-chair of the Ethiopian Civil Society Network on Climate Change (ECSNCC) FfE participated with regional Government and EWCA in demarcation of Babilie Elephant</p>

TABLE 17. ENVIRONMENT PROTECTION LOCAL NGOS

NAME	ACTIVITIES
	Sanctuary and Gambela NP. Assisted in preparation of Gambela National Park Management Plan. Working in collaboration with HOAREC.
Institute for Sustainable Development (ISD)	Two main programme areas: 1. Ecological Agricultural Development Working with farmers in degraded areas to improve crop production, soil protection and fertility, improved natural resources management. 2. Youth Groups Capacity Development Donors include: Swedish Society for Nature Conservation (via Swedish SIDA), EU (urban and rural) is supporting school clubs and youth groups to improve environment/
LEM, the Environment and Development Society of Ethiopia	Ethiopian Resident Charitable Organization
Melca Ethiopia	Melca Ethiopia works on three of the seven biodiversity issues; namely mountains, agro and forest, with a cross-cutting theme of Traditional Ecological Knowledge'. Melca has five programme areas: 1. Ecosystem rehabilitation (primarily soil and water conservation) 2. Participatory GIS (mapping and modelling) 3. Environmental Education (named 'SEGNI' after the Ormoiya word for seed. Melca takes children on five day nature expeditions to forested areas to connect youth with nature, culture and themselves. 4. Income generating initiatives (to help marginalized poor communities) 5. Advocacy (community empowerment, law enforcement and improving regulation. Melca engages actively with parliament, brings together all departments at regional levels and assesses environmental impacts) Melca currently working in Bale Mountains NP, Menegesha Suba Sebeta and Sheka Forest Coffee area (nominated for new UNESCO biosphere reserve status) Donors include: Swedish, Norwegian and Finland International Development Agencies.
Population, Health, Environment (PHE) Consortium	Consortium 47 members and 35 pilot woredas. Works with partner member organizations to provide local connection. Integrated approach focusing on each of the following: Population: Family Planning (Birth Spacing, limiting births, emergency contraception, adolescent sexual and Reproductive Health, etc.) Health: HIV/AIDS, ARI Prevention, water and sanitation, malaria prevention, primary health care, child survival, etc. Specific environmental projects: 1. Restoration of Basin Catchment Areas. Member of National task force. 12 basin areas in Ethiopia (water and energy website details areas). Donors include Packard Foundation, Heinrich Boll Foundation, Barr Foundation 2. Protected Area Management Member of National Task force (includes: EWCA, ESTA, EWNHS, PHE. Proposed additions FZS and HOAREC,-APN and other NGOs if working in protected areas). Selected 9 PA's to support. Awash, Gambela, Omo, Abijata Shala, Kafta Sheraro, Simien Mts, Babille Elephant Sanctuary, Nech Sar, Bale Mts. Member of working group for Awash NP. (Supported case study of problems, workshop and integrated way forward.) Candidate for Gambela working group. Environment: Environmental conservation, natural resources management (NRM) 3. Climate Adaptation

TABLE 17. ENVIRONMENT PROTECTION LOCAL NGOS

NAME	ACTIVITIES
	Part of Government negotiation team. (includes: MEFCC lead, Min of Health, Culture and Tourism, Agric, Water and Energy.) PHE represents civil society. Works with PHE members on how resilience to climate change can be strengthened. Core member of Climate Change Network of 60 member organizations.
Sustainable Land Use Forum (SLUF)	Membership NGO. Currently 3 international and 21 local NGOs. Overall objective to improve livelihoods through sustainable land use and improved natural resource management. Programmes include: 1. Training of trainers In country and abroad 2. Experience sharing visits In country and abroad 3. Workshops and Conferences 4. Pilot sites 5. Publications 6. Documentary Films 7. Grant Fund Management 8. Networking 9. Electronic Networking

TABLE 18. ENVIRONMENT PROTECTION PARASTATAL AND BILATERAL ORGANIZATIONS AND PROJECTS

NAME	MAIN FUNCTION
Horn of Africa Regional Environment Centre (HoA-REC)	Project operating out of Addis Ababa University. Projects: • Central Rift Valley, • Climate Change, • Demand Driven Action Research, • Energy (promotion and development of locally available alternatives to Fuel wood, crop residues, charcoal, kerosene and dung) EU funding. 3 yr project started • Horn Regreening • Ecosystem Management and Conservation. • Feasibility study for endowment/trust fund for Ethiopia protected areas • Wildlife and conservation information center
Sustainable Development of the Protected Area System of Ethiopia (SDPASE)	Funding of Euro 9 million from Global Environmental Facility (GEF) of United Nations Development Programme (UNDP) First phase implemented by GIZ-IS from offices within EWCA Focus on publications: Gap analysis, Carbon study. (Gap analysis), Economic study, map of protected areas, study of Abijata Shala, Field Guides, Surveys: Contributed to aerial survey Gambela NP Training: Ranger training
UNDP	GEF Small Grants Programme Ethiopia. Supported over 75 projects (incl. renewable energy, energy saving stoves, area closure, soil and water conservation, raising seedlings)

TABLE 18. ENVIRONMENT PROTECTION PARASTATAL AND BILATERAL ORGANIZATIONS AND PROJECTS

NAME	MAIN FUNCTION
German Development Cooperation(GIZ and KFW)	KFW supports the SLMP of Ministry of Agriculture and Natural resources financially and GIZ is supporting the same program technically since 2008. Currently SLMP is in its second phase of operation. GIZ and KFW are also supporting Ministry of Environment, forest and Climate change in Biodiversity conservation and Forest Landscape restoration program started in 2016. The Biodiversity and Forest landscape restoration Program is being operational in SNNPR, Tigray, Oromia and Amhara regions in selected Protected areas(Yayu, Chebera Churchra, Denkoro Chaka, Desa, and Bale Mountains)

TABLE 19. BOTANICAL GARDENS AND HERBARIUMS

Gullele Botanical Gardens	Botanical gardens has been constructed on 705 hectare site in northwest part of Addis Ababa. Co-managed by Addis Ababa City Administration and University of Addis Ababa. Board includes Min. of Culture and Tourism, Director General of Institute of Biodiversity Conservation, Deputy Mayor of Addis Ababa, University of Addis Ababa. Initial funding for study and design including land use plan from Embassy of Royal Netherlands. Phase One construction funded by Addis Ababa City Administration. Gardens include Zones planted to represent each of Ethiopia's 5 traditional ecological zones, Natural History Museum (with taxidermy displays), Butterfly Aviary, Bird Aviary (a natural ravine will be covered with netting), plant nurseries, amphitheatre, restaurant. Funding sought for Phase Two: Main building to house Natural History Museum perimeter fencing, 4 km walking/jogging pathways, access roads, first building, water dams, extensive soil and water conservation works, layout and development of thematic gardens has been completed.
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TABLE 20. LAND PROTECTED BY BELIEF SYSTEMS

Ethiopian Orthodox Church (EOC) Forests	There are over 35,000 Ethiopian Orthodox churches in Ethiopia. The majority of the churches and monasteries have protected areas of old forests that are rich in biodiversity. No detailed information exists regarding these sites, however a conservative estimate is that 80% of churches each have protected forest areas of at least 1 hectare. Therefore conservative estimated total church forests total 28,000 hectares. A proposal has been prepared for a detailed 10 year forest inventory study as part of a feasibility assessment for potential carbon emission trading. Fund raising in progress.
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TABLE 20. LAND PROTECTED BY BELIEF SYSTEMS

	<p>Ethiopian Orthodox Church Development and Inter Church Aid Commission (EOC-DICAC) undertakes a diverse range of programmes. Areas include: food security, water, health, conflict and peace building, refugees and education. A core program area is Environmental Rehabilitation. Many churches and forests also have ‘area closures’ where for three to six years, land is protected in order to improve water tables and habitat. EOC and communities draft byelaws for sustainable land management. (Total approx. hectares to follow.) (EOC is partnered with World Council of Churches, International Orthodox Christian Charities and Action by Churches Together (ACT Welt Hunger Hilfe (German Agro Action) working on PFM projects in Church Forests in Amhara Region.)</p> <p>Other land protected by belief systems include: Muslim, Oromo Gedda, Ghdeio and Sidama</p>
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TABLE 21. ENVIRONMENTAL ASSOCIATIONS AND WORKING GROUPS

<p>Ethiopian Civil Society Network on Climate Change (ECSNCC)</p>	<p>Established in 2009, this is a network of 60 members with the objectives of raising public awareness, organize experience-sharing programs, building capacity and engage in international negotiations regarding climate change, FfE is the secretariat, co-chair and hosts the network with SLUF.</p> <p>10 working groups with lead agencies that report to the secretariat. Set along thematic areas:</p> <ul style="list-style-type: none"> • Agriculture and Sustainable Land Management • Energy • Health, Population and Education • Forests and Protected Areas • Pastoralism • Urban Environment • Water • Negotiation and Campaign • Disaster Risk Reduction
<p>Man and Biosphere (MAB) National Committee</p>	<p>Since UNESCO focuses on education and science, The Ministry of Science and Technology has been given the role of coordinator for all Ethiopian biospheres. The national committee meets biannually and is made up of seven Federal institutions, the Regional government that contains the biosphere and Observers:</p> <ul style="list-style-type: none"> • Ministry of Science and Technology (Chair) • Institute of Biodiversity Conservation • Ministry of Water and Energy • Ministry of Agriculture, Natural Resource Management • Ministry of Culture and Tourism • Ethiopian Wildlife Conservation Authority • Ministry of Education • Regional Government where biosphere located • Observers are invited (e.g., NGOs working in the biosphere and donor organizations) <p>Committee currently looking at potential other biosphere possibilities in Ethiopia according to UNESCO guidelines. (e.g., Bale Mountains)</p>
<p>REDD+ Working Group</p>	<p>Members include:</p> <ul style="list-style-type: none"> • Ethio-Wetlands and Natural Resources Association • FARM Africa/SOS Sahel • Forum for the Environment • GIZ • Japanese International Cooperation Agency • Melca Ethiopia • Ministry of Agriculture, Natural Resource Management, Participatory Forestry

ANNEX C: THREATENED AND ENDANGERED SPECIES

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
Plantae	<i>Acacia condyloclada</i>		LR/nt	1998	
Plantae	<i>Acacia negrii</i>		NT	2012	S
Plantae	<i>Acacia origena</i>		LR/nt	1998	
Plantae	<i>Acacia prasinata</i>		VU	1998	
Plantae	<i>Acacia pseudonigrescens</i>		VU	1998	
Plantae	<i>Acacia venosa</i>		VU	1998	
Animalia	<i>Acinonyx jubatus</i>	Cheetah, Hunting Leopard	VU	2015	D
Animalia	<i>Acrocephalus griseldis</i>	Basra Reed-warbler, Basra Reed-Warbler, Basra Reed Warbler	EN	2012	D
Plantae	<i>Aeschynomene ruspoliana</i>		CR	2012	U
Animalia	<i>Afrixalus clarkei</i>	Clarke's Banana Frog	EN	2013	U
Animalia	<i>Afrixalus enseticola</i>	Ethiopian Banana Frog	VU	2013	S
Animalia	<i>Agabus discicollis</i>		EN	1996	
Plantae	<i>Aloe adigratana</i>		EN	2013	U
Plantae	<i>Aloe ankoberensis</i>		EN	2013	D
Plantae	<i>Aloe friisii</i>		EN	2013	U
Plantae	<i>Aloe ghibensis</i>		CR	2013	U
Plantae	<i>Aloe harlana</i>		EN	2013	D
Plantae	<i>Aloe kefaensis</i>		EN	2013	U
Plantae	<i>Aloe monticola</i>		EN	2013	D
Plantae	<i>Aloe percrassa</i>		NT	2013	D
Plantae	<i>Aloe pubescens</i>		NT	2013	S
Plantae	<i>Aloe pulcherrima</i>		VU	2013	D
Plantae	<i>Aloe retrospicens</i>		VU	2013	U
Plantae	<i>Aloe rugosifolia</i>		VU	2013	D
Plantae	<i>Aloe schelpei</i>		EN	2013	D
Plantae	<i>Aloe sinana</i>		EN	2013	S
Plantae	<i>Aloe steudneri</i>		NT	2013	D
Plantae	<i>Aloe tewoldei</i>		NT	2013	U
Plantae	<i>Aloe yavellana</i>		EN	2013	D
Animalia	<i>Altiphrynoides malcolmi</i>	Malcolm's Ethiopia Toad, Ethiopian Mountain Toad	EN	2013	D
Animalia	<i>Altiphrynoides osgoodi</i>	Osgood's Ethiopian Toad	CR	2014	U
Animalia	<i>Ammodorcas clarkei</i>	Dibatag, Clarke's Gazelle	VU	2008	D
Animalia	<i>Ancyclus ashangiensis</i>		CR	2010	U

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
Plantae	<i>Ansellia africana</i>	Leopard Orchid, Monkey Sugarcane, African Ansellia, Mopane Orchid, Tree Orchid	VU	2013	D
Animalia	<i>Aonyx capensis</i>	African Clawless Otter, Cape Clawless Otter	NT	2015	D
Animalia	<i>Aphanius stiasnyae</i>		EN	2010	U
Animalia	<i>Aquila heliaca</i>	Eastern Imperial Eagle, Imperial Eagle, Asian Imperial Eagle	VU	2013	D
Animalia	<i>Aquila nipalensis</i>	Steppe Eagle	EN	2015	D
Animalia	<i>Ardeotis arabs</i>	Arabian Bustard	NT	2015	D
Animalia	<i>Ardeotis kori</i>	Kori Bustard	NT	2013	D
Animalia	<i>Arvicanthis blicki</i>	Blick's Grass Rat, Blick's Arvicanthis	NT	2008	U
Animalia	<i>Atoconeura aethiopica</i>		VU	2010	D
Animalia	<i>Aythya ferina</i>	Common Pochard, Pochard, Northern Pochard	VU	2015	D
Animalia	<i>Aythya nyroca</i>	Ferruginous Duck, White-eyed Pochard, Ferruginous Pochard	NT	2015	D
Animalia	<i>Balearica pavonina</i>	Black Crowned-crane, Black Crowned-Crane, Black Crowned Crane, Northern Crowned Crane	VU	2012	D
Animalia	<i>Balebreviceps hillmani</i>	Bale Mountains Treefrog, Ethiopian Short-headed Frog	CR	2013	D
Plantae	<i>Baphia abyssinica</i>		VU	1998	
Plantae	<i>Boswellia ogadensis</i>		VU	1998	
Plantae	<i>Boswellia pirottae</i>		LR/nt	1998	
Plantae	<i>Bottegoa insignis</i>		LR/nt	1998	
Animalia	<i>Bugeranus carunculatus</i>	Wattled Crane	VU	2013	D
Plantae	<i>Bulbostylis clarkeana</i>		NT	2010	U
Animalia	<i>Bulinus octaploidus</i>		LR/nt	1996	
Animalia	<i>Buteo oreophilus</i>	Mountain Buzzard	NT	2014	D
Animalia	<i>Calidris ferruginea</i>	Curlew Sandpiper	NT	2015	D
Animalia	<i>Canis simensis</i>	Ethiopian Wolf, Simien Jackal, Simien Fox	EN	2011	D
Animalia	<i>Capra walie</i>	Walia Ibex, Walia	EN	2008	I
Animalia	<i>Caprimulgus solala</i>	Nechisar Nightjar	VU	2012	U
Plantae	<i>Carex monostachya</i>		VU	2010	U
Animalia	<i>Centrochelys sulcata</i>	African Spurred Tortoise, Grooved Tortoise	VU	1996	

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
Animalia	<i>Chlorocebus djamdjamensis</i>	Bale Monkey, Djam-djam, Bale Mountains Vervet, Bale Mountains Grivet	VU	2008	D
Animalia	<i>Circus macrourus</i>	Pallid Harrier, Pale Harrier	NT	2015	D
Animalia	<i>Clanga clanga</i>	Greater Spotted Eagle, Spotted Eagle	VU	2013	D
Plantae	<i>Combretum hartmannianum</i>		VU	1998	
Plantae	<i>Combretum rochetianum</i>		VU	1998	
Plantae	<i>Commiphora albiflora</i>		LR/nt	1998	
Plantae	<i>Commiphora ciliata</i>		LR/nt	1998	
Plantae	<i>Commiphora corrugata</i>		LR/nt	1998	
Plantae	<i>Commiphora guidottii</i>		LR/nt	1998	
Plantae	<i>Commiphora hodai</i>		LR/nt	1998	
Plantae	<i>Commiphora monoica</i>		VU	1998	
Plantae	<i>Commiphora obovata</i>		LR/nt	1998	
Plantae	<i>Commiphora sphaerophylla</i>		LR/nt	1998	
Plantae	<i>Commiphora truncata</i>		LR/nt	1998	
Plantae	<i>Commiphora unilobata</i>		LR/nt	1998	
Plantae	<i>Cordeauxia edulis</i>		VU	1998	
Plantae	<i>Cordia suckertii</i>		LR/nt	1998	
Animalia	<i>Crenigomphus abyssinicus</i>		VU	2010	U
Animalia	<i>Crenigomphus denticulatus</i>		VU	2010	U
Animalia	<i>Crocidura baileyi</i>	Bailey's Shrew	EN	2008	D
Animalia	<i>Crocidura bottegoides</i>	Bale Shrew	EN	2008	D
Animalia	<i>Crocidura glassi</i>	Glass's Shrew	VU	2008	D
Animalia	<i>Crocidura harensa</i>	Harensa Shrew	CR	2008	D
Animalia	<i>Crocidura lucina</i>	Lucina's Shrew, Moorland Shrew, Morrlan Shrew	VU	2008	S
Animalia	<i>Crocidura macmillani</i>	Macmillan's Shrew	VU	2008	U
Animalia	<i>Crocidura phaeura</i>	Guramba Shrew	EN	2008	U
Plantae	<i>Crotalaria exaltata</i>		LR/nt	1998	
Plantae	<i>Cussonia ostinii</i>		LR/nt	1998	
Animalia	<i>Cyanochen cyanoptera</i>	Blue-winged Goose	VU	2012	D
Plantae	<i>Cyperus chionocephalus</i>		CR	2013	U

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
Plantae	<i>Dalbergia melanoxylon</i>	African Blackwood, Mozambique Ebony	LR/nt	1998	
Animalia	<i>Danakilia franchettii</i>		EN	2010	U
Plantae	<i>Delonix baccal</i>	Poinciana	NT	2014	D
Animalia	<i>Desmomys yaldeni</i>	Yalden's Desmomys	EN	2008	U
Animalia	<i>Diceros bicornis</i>	Black Rhinoceros, Hook-lipped Rhinoceros	CR	2012	I
Plantae	<i>Dichrostachys kirkii</i>		LR/nt	1998	
Plantae	<i>Dicraeopetalum stipulare</i>		VU	1998	
Plantae	<i>Dombeya aethiopica</i>		LR/nt	1998	
Plantae	<i>Dombeya longibracteolata</i>		VU	1998	
Plantae	<i>Dracaena ombet</i>	Gabal Elba Dragon Tree	EN	1998	
Animalia	<i>Eidolon helvum</i>	African Straw-coloured Fruit-bat, Staw-coloured Flying Fox, Pale Xantharpy, Straw-coloured Fruit Bat	NT	2008	D
Animalia	<i>Elatoneura pasquinii</i>		VU	2010	U
Animalia	<i>Equus africanus</i>	African Wild Ass, Ass, African Ass	CR	2015	D
Animalia	<i>Equus grevyi</i>	Grevy's Zebra	EN	2013	S
Animalia	<i>Ericabatrachus baleensis</i>	Bale Mountains Frog	CR	2013	U
Plantae	<i>Eriocaulon aethiopicum</i>		VU	2010	U
Plantae	<i>Erythrophysa septentrionalis</i>		LR/nt	1998	
Animalia	<i>Eudorcas rufifrons</i>	Red-fronted Gazelle	VU	2008	D
Plantae	<i>Euphorbia doloensis</i>		VU	1998	
Plantae	<i>Euphorbia nigrispinioides</i>		LR/nt	1998	
Plantae	<i>Euphorbia uniglans</i>		VU	1998	
Animalia	<i>Falco cherrug</i>	Saker Falcon, Saker	EN	2015	D
Animalia	<i>Falco fasciinucha</i>	Taita Falcon, Teita Falcon	VU	2014	D
Animalia	<i>Falco vespertinus</i>	Red-footed Falcon, Western Red-footed Falcon	NT	2013	D
Animalia	<i>Gallinago media</i>	Great Snipe	NT	2015	D
Animalia	<i>Garra duobarbis</i>		VU	2010	U
Animalia	<i>Garra regressus</i>		VU	2010	D
Animalia	<i>Garra tana</i>		VU	2010	S
Animalia	<i>Gazella dorcas</i>	Dorcas Gazelle	VU	2008	D
Animalia	<i>Gazella spekei</i>	*Speke's Gazelle	EN	2008	D
Animalia	<i>Geronticus eremita</i>	Northern Bald Ibis, Waldrapp,	CR	2015	D

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
		Bald Ibis, Hermit Ibis			
Animalia	<i>Glareola nordmanni</i>	Black-winged Pratincole	NT	2015	D
Animalia	<i>Glaucostegus thouin</i>	Clubnose Guitarfish	VU	2006	U
Animalia	<i>Grammomys minnae</i>	Ethiopian Thicket Rat	VU	2008	D
Animalia	<i>Gypaetus barbatus</i>	Bearded Vulture, Lammergeyer	NT	2015	D
Animalia	<i>Gyps africanus</i>	White-backed Vulture	CR	2015	D
Animalia	<i>Gyps rueppelli</i>	Rüppell's Vulture, Ruppell's Vulture, Rüppell's Griffon Vulture, Rueppell's Griffon	CR	2015	D
Animalia	<i>Heteromira fra archeri</i>	Liben Lark, Archer's Lark, Sidamo Lark	CR	2015	D
Animalia	<i>Heterotetrax humilis</i>	Little Brown Bustard	NT	2012	D
Animalia	<i>Hippopotamus amphibius</i>	Hippopotamus, Large Hippo, Common Hippopotamus	VU	2008	D
Animalia	<i>Hipposideros vittatus</i>	Commerson's Leafnosed Bat, Commerson's Roundleaf Bat, Commerson's Rhinoloph, Giant Leaf-nosed Bat	NT	2008	D
Animalia	<i>Hirundo megaensis</i>	White-tailed Swallow	VU	2012	D
Animalia	<i>Hyaena hyaena</i>	Striped Hyaena	NT	2015	D
Animalia	<i>Hydricis maculicollis</i>	Spotted-necked Otter, Speckle-throated Otter, Spot-necked Otter	NT	2015	D
Plantae	<i>Hygrophila asteracanthoides</i>		NT	2010	U
Plantae	<i>Hypericum gnidiifolium</i>		VU	1998	
Plantae	<i>Indigofera rothii</i>		VU	1998	
Animalia	<i>Ischnura abyssinica</i>	Ethiopian Bluetail	VU	2010	U
Animalia	<i>Jubaia aethiopica</i>		CR	2010	U
Animalia	<i>Kobus megaceros</i>	Nile Lechwe	EN	2008	D
Animalia	<i>Labeobarbus acutirostris</i>		VU	2010	D
Animalia	<i>Labeobarbus ethiopicus</i>		EN	2010	D
Animalia	<i>Labeobarbus gorguari</i>		VU	2010	D
Animalia	<i>Labeobarbus macrophtalmus</i>		EN	2010	U
Animalia	<i>Labeobarbus ossensis</i>		VU	2010	D
Animalia	<i>Labeobarbus platydorsus</i>		VU	2010	D
Plantae	<i>Lagarosiphon steudneri</i>		VU	2010	U
Plantae	<i>Lepidagathis pseudoaristata</i>		EN	2015	D

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
Animalia	<i>Leptopelis ragazzii</i>	Shoa Forest Treefrog, Ragazzi's Tree Frog	VU	2013	S
Animalia	<i>Leptopelis susanae</i>	Susana's Forest Treefrog, Susan's Tree Frog	EN	2013	U
Animalia	<i>Leptopelis yaldeni</i>	Yalden's Tree Frog	VU	2013	S
Animalia	<i>Limosa lapponica</i>	Bar-tailed Godwit	NT	2015	D
Animalia	<i>Limosa limosa</i>	Black-tailed Godwit	NT	2015	D
Animalia	<i>Litocranius walleri</i>	Gerenuk	NT	2008	D
Animalia	<i>Lophuromys brevicaudus</i>	Short-tailed Brush-furred Rat	NT	2008	D
Animalia	<i>Lophuromys melanonyx</i>	Black-clawed Brush-furred Rat	VU	2008	U
Animalia	<i>Loxodonta africana</i>	African Elephant	VU	2008	I
Animalia	<i>Lycaon pictus</i>	African Wild Dog, Painted Hunting Dog, Cape Hunting Dog	EN	2012	D
Animalia	<i>Macronyx flavicollis</i>	Abyssinian Longclaw	NT	2012	D
Animalia	<i>Mastomys awashensis</i>	Awash Mastomys, Awash Multimammate Mouse	VU	2008	D
Plantae	<i>Maytenus addat</i>		LR/nt	1998	
Plantae	<i>Maytenus harenensis</i>		VU	1998	
Plantae	<i>Milicia excelsa</i>		LR/nt	1998	
Animalia	<i>Myotis scotti</i>	Scott's Mouse-eared Bat	VU	2008	D
Animalia	<i>Nanger soemmerringii</i>	Gazelle de Soemmerring, *Soemmerring's Gazelle	VU	2008	D
Animalia	<i>Necrosyrtes monachus</i>	Hooded Vulture	CR	2015	D
Animalia	<i>Neophron percnopterus</i>	Egyptian Vulture, Egyptian Eagle	EN	2015	D
Animalia	<i>Neotis denhami</i>	Denham's Bustard, Stanley Bustard	NT	2015	D
Animalia	<i>Nilopegamys plumbeus</i>	Ethiopian Amphibious Rat, Ethiopian Water Mouse	CR	2008	U
Animalia	<i>Notogomphus cottarellii</i>		EN	2010	U
Animalia	<i>Notogomphus ruppeli</i>		EN	2010	U
Animalia	<i>Numenius arquata</i>	Eurasian Curlew, Curlew	NT	2015	D
Plantae	<i>Ocotea kenyensis</i>		VU	1998	
Animalia	<i>Oryx beisa</i>	Beisa Oryx	NT	2008	D
Animalia	<i>Otomops martiensseni</i>	Large-eared Free-tailed Bat, Martiensen's Free-tailed Bat, Large-eared Giant Mastiff Bat, Giant Mastiff Bat, Martienssen Bat, Martienssen's Big-eared Bulldog Bat	NT	2008	D
Animalia	<i>Oxyura maccoa</i>	Maccoa Duck	NT	2013	D

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
Animalia	<i>Paracassina kounhiensis</i>	Kouni Valley Striped Frog, Mocquard's Mountain Kassina	VU	2013	S
Animalia	<i>Paramphilius trichomycteroides</i>		NT	2010	U
Animalia	<i>Phoeniconaias minor</i>	Lesser Flamingo	NT	2015	D
Animalia	<i>Pisidium ethiopicum</i>		CR	2010	U
Plantae	<i>Pistacia aethiopica</i>		LR/nt	1998	
Animalia	<i>Polemaetus bellicosus</i>	Martial Eagle	VU	2013	D
Plantae	<i>Polyscias farinosa</i>		LR/nt	1998	
Animalia	<i>Potamonautes ignestii</i>		VU	2008	U
Plantae	<i>Prunus africana</i>	Red Stinkwood, African Cherry, African Almond	VU	1998	
Animalia	<i>Pseudagrion guichardi</i>		VU	2010	U
Animalia	<i>Pseudagrion kaffinum</i>		VU	2010	U
Animalia	<i>Pternistis harwoodi</i>	Harwood's Francolin	VU	2012	D
Animalia	<i>Ptychadena erlangeri</i>	Erlanger's Grassland Frog, Erlanger's Grass Frog	NT	2013	U
Animalia	<i>Ptychadena nana</i>	Somali Grassland Frog, Smallest Grass Frog	EN	2013	S
Animalia	<i>Rougetius rougetii</i>	Rouget's Rail	NT	2012	D
Animalia	<i>Rynchops flavirostris</i>	African Skimmer	NT	2012	D
Animalia	<i>Sagittarius serpentarius</i>	Secretarybird, Secretary Bird	VU	2013	D
Animalia	<i>Sarothrura ayresi</i>	White-winged Flufftail, White-winged Crake	CR	2015	D
Animalia	<i>Scleroptila psilolaema</i>	Moorland Francolin	NT	2014	D
Animalia	<i>Serinus ankoberensis</i>	Ankober Serin	VU	2012	D
Animalia	<i>Serinus flavigula</i>	Yellow-throated Seedeater, Yellow-throated Serin	EN	2012	D
Animalia	<i>Serinus xantholaemus</i>	Salvadori's Serin	VU	2012	D
Animalia	<i>Sousa chinensis</i>	Indo-pacific Hump-backed Dolphin, Indo-Pacific Humpbacked Dolphin, Indo-pacific Humpback Dolphin, Chinese White Dolphin	NT	2008	D
Plantae	<i>Steganotaenia commiphoroides</i>		LR/nt	1998	
Animalia	<i>Stephanoaetus coronatus</i>	Crowned Eagle, Crowned Hawk-Eagle, Crowned Eagle	NT	2012	D
Plantae	<i>Sterculia cinerea</i>		LR/nt	1998	
Animalia	<i>Streptopelia reichenowi</i>	White-winged Collared-dove, White-winged Collared-Dove, White-winged Collared Dove,	NT	2012	S

KINGDOM	SCIENTIFIC NAME	COMMON NAMES(S)	RED LIST STATUS ¹	YEAR ASSESSED	TREND (I, D, U, S) ²
		White-winged Dove			
Animalia	<i>Streptopelia turtur</i>	European Turtle-dove, European Turtle-Dove, European Turtle Dove, Turtle Dove	VU	2015	D
Animalia	<i>Struthio molybdophanes</i>	Somali Ostrich	VU	2014	D
Animalia	<i>Tachyoryctes macrocephalus</i>	Giant Mole Rat	EN	2008	D
Animalia	<i>Taeniurops meyeri</i>	Blotched Fantail Ray, Giant Reef Ray, Black-blotched Stingray, Fantail Stingray, Black-spotted Stingray, Round Ribbontail Ray, Speckled Stingray	VU	2015	D
Animalia	<i>Tauraco ruspolii</i>	Ruspoli's Turaco, Ruspoli's Turaco	VU	2012	D
Animalia	<i>Terathopius ecaudatus</i>	Bateleur	NT	2012	D
Plantae	<i>Terminalia hecistocarpa</i>		VU	1998	
Animalia	<i>Torgos tracheliotos</i>	Lappet-faced Vulture	EN	2015	D
Animalia	<i>Tragelaphus buxtoni</i>	Mountain Nyala	EN	2008	D
Animalia	<i>Tragelaphus imberbis</i>	Lesser Kudu	NT	2008	D
Animalia	<i>Trigonoceps occipitalis</i>	White-headed Vulture	CR	2015	D
Animalia	<i>Trioceros balebicornutus</i>	Bale Two-horned Chameleon	NT	2014	D
Animalia	<i>Unio abyssinicus</i>		EN	2010	U
Animalia	<i>Vanellus gregarius</i>	Sociable Lapwing, Sociable Plover	CR	2015	D
Plantae	<i>Vepris borensis</i>		VU	1998	
Animalia	<i>Xenopus largeni</i>	Largen's Clawed Frog, Sidamo Clawed Frog	EN	2014	U
Animalia	<i>Zavattariornis stresemanni</i>	Ethiopian Bush-crow, Stresemann's Bush-Crow, Stresemann's Bush Crow	EN	2012	D

Source: IUCN Red List <http://www.iucnredlist.org/>

¹ EW = extinct in the wild, CR = critically endangered, EN = endangered, VU = vulnerable, NT = near threatened, LR/nt=lower risk/near threatened

² I = increasing, D = decreasing, U = unknown, S=stable. Several cells in this column were blank in the IUCN dataset.

ANNEX D: PROTECTED AREAS INFORMATION

ETHIOPIA PROTECTED AREAS AND THEIR CURRENT STATUS

AR	NAME	REGION	YEAR EST.	AREA IN SQ.KM	GAZETTED	MANAGED BY	STATUS
NATIONAL PARKS							
1	Kaftashiraro	Tigray	1999	5000			
2	Simen Mountains	Amhara	1959	412	Yes, but with frequent review	Fed	UNESCO World Heritage Site. Boundary demarcation completed. Austrian Development Corporation (ADC) did facility construction project. Japanese International Cooperation Agency community tourism project started November 2011. Frankfurt Zoological Society(FZS) project. Ethiopian Wolf Conservation Project (EWCP). Possibility of new project by AWF
3	Alatish	Amhara				At regional level	Boundary demarcation completed. ADC recently completed facility Construction project. Welt Hunger Hilfe (GAA) Project
4	Bahir Dar Blue Nile River Millennium	Amhara	2008	4729		Regional	
5	Boranasaynt	Amhara	2008	4325		regional	Currently, German Development Cooperation(German Technical Cooperation(GIZ)and German Development Bank(KFW)) is supporting the regional Government in financial and technical terms to restore the forest landscape
6	Yangudi Rasa	Afar	1969	4731		Federal	

AR	NAME	REGION	YEAR EST.	AREA IN SQ.KM	GAZETTED	MANAGED BY	STATUS
7	Awash	Oromia & Afar	1958	746	Yes, but still under pressure from the surrounding communities	Federal	Permanent settlements and many livestock inside NP
8	DatiWelel	Oromia	2010	1031		Regional	Was originally controlled hunting area.. Demarcated.
9	Bale Mountains	Oromia	1962	2200		Regional	Permanent settlements and many Livestock inside NP. Projects by FZS, EWCP, FARM Africa/ SOS Sahel in Hareenna Forest Melca Ethiopia project. Currently, GDCCO(GIZ& KFW) is under preparation to establish SLM project
10	Yabello	Oromia	1978	1500		Regional	Almost approved as a National Park. Will include Sarite Plains. Local stakeholder meeting 2010 agreed NP But with reduced overall size. WILDCODE Grevy and Burchill zebra survey in Sarite plaine was undertaken
11	Abijata Shalla	Oromia	1963	887		Federal	Some given for mushroom farm. HoAREC assisting in Eco-tourism project
12	Arsi Mountains	Oromia	2012			Regional	Includes 4 blocks incl. Deara Sanctuary. Boundary of 3 blocks demarcated. EWCP
13	Geralle	Somali	1998	3558		Regional	
14	Gambela	Gambela	1966	4650		Federal	Demarcation completed. GEF5, EU projects in progress. HoAREC due to start. Possibility of new projects by

AR	NAME	REGION	YEAR EST.	AREA IN SQ.KM	GAZETTED	MANAGED BY	STATUS
							APN, LCA, WCS? FZS?
15	Nech Sar	SNNPR	1966	414		Federal	
16	Omo	SNNPR	1959	3566		Federal	South area of Park given to Sugar Plantation
17	Mago	SNNPR	1974	1947		Regional	Sugar Plantation? Oil prospecting?
18	Maze	SNNPR	1997	202		Regional	
19	Gibe Sheleko	SNNPR	2001	248		Regional	
20	Loka Abaya	SNNPR	2001	500		Regional	
21	Chebera Churchura	SNNPR	1997	1190		Regional	GIZ recently started a Biodiversity and Forest landscape restoration projects
WILDLIFE SANCTUARIES							
1	Babile Elephant Sanctuary	Oromia & Somali	1962	6987		Federal	Boundary demarcation completed. EWCA built HQ in Babile Town. Also built 3 scout outposts. One of these acts as entrance gate. WSD elephant collaring project ended
2	Sinkele Swayne's Hartebeest Sanctuary	Oromia & SNNPR	1964	54		Federal	Boundary demarcation completed. Construction of STN Visitors Centre is completed
WILDLIFE RESERVES							
1	Chelbi	SNNPR		4212		Regional	WILDCODE Grevy survey
2	Aledegi	Afar				Regional	WILDCODE Grevy survey. Fanuel from EWCA PhD Wild Ass and Grevy
3	Lemalimo Nature Reserve	Amhara					Tara Primate Centre
COMMUNITY CONSERVATION AREAS							
1	<u>Tama</u>	<u>SNNPR</u>		<u>1665</u>	<u>Tama</u>		
2	<u>Simen Gibe</u>	<u>SNNPR</u>	<u>2001</u>	<u>49</u>	<u>Simen Gibe</u>		

AR	NAME	REGION	YEAR EST.	AREA IN SQ.KM	GAZETTED	MANAGED BY	STATUS
3	<u>Garameba</u>	<u>SNNPR</u>	<u>2001</u>	<u>25</u>	<u>Garameba</u>		
4	<u>Guassa Menz</u>	<u>Amhara</u>		<u>110</u>			FZS, EWC
5	<u>Abune Yoseph</u>	<u>Amhara</u>		<u>50</u>			FZS project /TESFA looking at community tourism initiative, EWC
6	<u>Lepis Forest</u>	<u>Oromia</u>					ESTA/HoAREC Ecotourism
WILDLIFE RESCUE CENTRES							
1	Ensessakotteh Wildlife Rescue, Conservation and Education Centre, Holeta	<u>Oromia</u>	2009	0.78			Centre being constructed. Have agreement with Forest Research Centre (FRC) and now fenced FRC forest into site
2	Tara Primate Centre	<u>Amhara</u>					Centre in Gondar closed down in 2009. Now situated in Dib Bahir near Debark
CONTROLLED HUNTING AREAS							
1	Asbahire	<u>Afar</u>	2012	174			Concession to be allocated
2	Billen Hertele	<u>Afar</u>		1090			Concession with Libah Hunting and Photo Safari
3	Chifera	<u>Afar</u>	1998	510			Concession with Rocky Valley Hunting Safari
4	Melka Sedi	<u>Afar</u>	2012	122			Concession to be allocated
5	elalak-Dewe	<u>Afar</u>		457			Concession with Travel Ethiopia
6	Abasheba Demero	<u>Oromia</u>	1994	210			Concession with Ethiopian Rift Valley Safari
7	<u>Alluto</u>	<u>Oromia</u>		290			Concession with Ethiopian Rift Valley Safari
8	<u>Arbagugu</u>	<u>Oromia</u>	1995	341			Concession with Libah Hunting and Photo Safari
9	<u>Bessemena-Ododulu</u>	<u>Oromia</u>	1993	350			Concession with Ethiopian Rift Valley Safari
10	<u>Dindin</u>	<u>Oromia</u>		290			Concession with Travel Ethiopia

AR	NAME	REGION	YEAR EST.	AREA IN SQ.KM	GAZETTED	MANAGED BY	STATUS
11	<u>Hanto</u>	<u>Oromia</u>	1991	190			Concession with Rocky Valley Hunting Safari
12	<u>Haro Abadinko</u>	<u>Oromia</u>	2000	78			Concession with Travel Ethiopia
13	<u>Huruta Soma</u>	<u>Oromia</u>	2000	215			Concession with Libah Hunting and Photo Safari
14	<u>Munessa Kuke</u>	<u>Oromia</u>	1993	11			Concession with Ethiopian Rift Valley Safari
15	ShedemBerbere	Oromia	1988	170			Concession with Travel Ethiopi
16	UrganBula	Oromia	2000	78			Concession with Blue Nile Safari
17	Murule	SNNPR		690			Concession with Ethiopian Rift Valley Safar
18	Welshet sala	SNNPR	2000	350			Concession with Ethiopian Rift Valley Safari
19	Dembel-Aysho-Adigata	Somali	2012	910			Concession to be allocated
20	Shenele Meto	Somali	2012	484			Concession to be allocated
COMMUNITY MANAGED ECOTOURISM AND HUNTING AREAS							
1	Sororo-Tergem	Oromiya	2000	78			Concession with Travel Ethiopia. Community share 60% of hunting revenue but not concession
2	Adaba-Dodola	Oromiya	2000	736			Concession with Shield and Speer International. Community share 60% of both concession fee and hunting revenue
OPEN HUNTING AREAS (AREA WHERE ANY CONCESSION HOLDER CAN APPLY TO HUNT DESIGNATED QUOTA)							
1	Gara Gumbi	Oromiya		140			
2	Gara Miti	Oromiya		240			
3	Sinana	Oromiya		15			
4	Jibat	Oromiya		100			
5	Debre Libanos	Oromiya		31			Unique in world with Gelada quote

AR	NAME	REGION	YEAR EST.	AREA IN SQ.KM	GAZETTED	MANAGED BY	STATUS
6	Gelila Dura	<u>Afar</u>		140			
COMMERCIAL RANCHES							
1	Arbaminch Crocodile Farm	SNNPR					Government owned
2	Blen Crocodile Ranch	SNNPR					Private
BOTANICAL GARDENS AND HERBARIUMS							
1	Gulele	Addis Abeba	1995	7			Construction completed and opened to the public since 2012.
2	<u>National Herbarium</u>						
BIOSPHERE RESERVES							
1	Yayu	<u>Qromia</u>	2010	467			Recognized by UNESCO 2010
2	Kafa, Coffee Forest	SNNPR	2010	760			Recognized by UNESCO 2010. Considered birth place of Arabica Coffee. Funding from German NGO, NABU. GEF Project with Institute of Biodiversity Conservation
3	Sheka	SNNPR					Recognized by UNESCO July 2012 Melca Ethiopia project
4	Lake Tana	Amhara					Recognized by UNESCO in 2014 Project of Michael Succow Foundation with NABU

ANNEX E: BIOGRAPHICAL SKETCHES OF TEAM MEMBERS

Mr. Charles Hernick (Team Leader). Mr. Hernick (The Cadmus Group, Inc.) is an expert on USAID environmental compliance requirements, including FAA Sections 118 and 119, most recently demonstrated as Team Leader for tropical forestry and biodiversity assessments in Senegal and Mali, and through his contributions to assessments in Peru and South Sudan, for 10 Caribbean countries. He has six years of ecology field- and laboratory-based research experience. He has leveraged his background in ecology and economics to conduct environmental impact assessments for development projects in Asia, Africa, and Central America. He has conducted trainings and guest lectured on numerous environmental issues worldwide. He has managed extensive policy and finance research and analysis, and has facilitated expert consultations in the design of U.S. policy for mitigating the financial risks associated with environmental liabilities (i.e., polluter pays principle/financial assurance). Mr. Hernick has a B.S. in Ecology from the University of Minnesota and an M.A. in International Relations and Environmental Policy from Boston University.

Dr. Arianne Neigh (Natural Resource and USAID Programming Specialist). Dr. Neigh is a senior technical advisor and policy analyst with 15 years working experience in natural resource management, international development, risk assessment, and toxicology in municipal, federal, military, and private contexts, with 14 publications and more than 40 presentations on the subjects. She has extensive experience in applying ESIA practices both domestically and across more than 30 countries. As USAID Post-Crisis Environmental Advisor and Interim Regional Environmental Advisor to the USAID/Southern Africa Regional Mission, Dr. Neigh was responsible for evaluation and oversight of the environment safeguards, climate change integration, and human health and safety of USAID-funded programs. Under GEMS II, Dr. Neigh focuses largely on issues of environmental safeguards and human health and safety in sub-Saharan Africa. She also provides 22 CFR 216 audit services for USAID/Missions, conducts evaluations of Indoor Residual Spray campaigns, and frequently drafts 22 CFR 216 documentation and Mission planning reports for Africa Bureau, Global Health Bureau, and the Bureau for Democracy, Conflict, and Humanitarian Assistance. Previously in Ethiopia, Dr. Neigh participated in the Food for Peace (FFP) M&E workshops for implementing partners, worked on the FFP Roads PEA and Fumigation PEA, and most recently, conducted a consultative assessment of non-governmental and private voluntary organizations working with FFP to document their level of capacity for climate change adaptation programming, and provide field level review of their activities in the area of climate smart agriculture, disaster risk reduction, infrastructure, WASH, and remediation of environmental degradation. Dr. Neigh has a dual Ph.D. in Environmental Toxicology and Zoology from Michigan State University as well as a B.S. in natural resource management.

Ms. Kathleen Hurley. Ms. Hurley (The Cadmus Group, Inc.) is an environmental management professional with more than 15 years of experience in all phases of project development. She is a biologist by training and has expertise in environmental and social safeguards for USAID, multilateral development banks, and domestic U.S. environmental policy. She is a Latin American rural community development and tropical ecology expert, who has conducted community development work in Costa Rica, specifically with coffee value chains and rural agriculture, as well as tropical ecology research. Ms. Hurley has provided environmental compliance support in Asia, Latin America, the Caribbean, and Africa, with a particular focus in Latin America. Ms. Hurley was the technical lead for the 10-country Caribbean FAA 118/119 and the South Sudan FAA 118/119 assessments for USAID; she led the environmental audit for the Rural Value Chains Project in Guatemala, and leads multi-lateral development bank ESIA gaps analyses. She is experienced with USAID environmental compliance procedures and regularly facilitates workshops on USAID environmental compliance. Ms. Hurley has a B.A. in Biology and Environmental Studies from the University of St. Thomas (MN), an M.S. in Environmental and Marine Science from Western Washington University, and a M.A. in International Affairs, with a focus on environmental policy and governance from The Fletcher School at Tufts University.

Mr. Amare Worku (Senior Sustainable Land Management Advisor, GIZ-SLM). Mr. Amare obtained his M.Sc. in Farm Forestry from Uppsala, Swedish University of Agricultural Sciences (SLU) in 1998, his Post Graduate Diploma in Forestry for Rural Development from International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede the Netherlands in 1993, and his B.Sc. in Forest Management from the University of the Philippines, Losbagnos, College Laguna, in 1988. He has more than 30 years of experience in forest management planning and in the field of natural resources management (soil and water conservation) at different positions. To mention the most recent ones, July 2001 to April 2004 he worked as a Training Needs Assessment and Research Coordination Team Leader in the then Agricultural Technical and Vocational Training (ATVET) Coordination Department, MoA, Addis Abeba. April 2004 to March 2008 he worked as a Department Head for Forestry, Land Use and Soils Conservation in MoA, Addis Abeba. July 2009 to September 2013 he worked as principal watershed development advisor for the German Development Cooperation (GTZ, now GIZ), Addis Abeba, to support the Sustainable Land Management Project of the Ministry of Agriculture. October 2013 to the present he is working for German Development Cooperation (GIZ-SLM) as Project Coordinator for Participatory Forest Management (PFM). Mr. Amare spearheaded a team of professionals to draft forest policy; the Forest Development, Protection and Utilization Proclamation; and the rural land administration proclamation, which were issued by the Ethiopian Government in 2007. He also prepared forest management plans for quite a number of National Forest Priority Areas (NFPAs) and participated in many studies and drafted various reports related to natural resources. To mention a few; he participated in drafting the Amhara and SNNPR Regional Forest Action Plans, participated in drafting the Baro-Akobo Basin and Diredawa Master plan and prepared a Background Report on Land Governance Assessment Framework Analysis “Rights to Forest and Common Lands & Rural Land Use Regulations in Ethiopia for the World Bank in November, 2015.

Mr. Fikadu Getachew. Fikadu Getachew (M.Sc. in Farm Forestry and B.Sc. in Forestry) is an independent consultant based in Ethiopia working in the area of project management (senior project planning, monitoring and evaluation advisor), forestry, environment, and natural resource management and climate change sectors. Fikadu worked in Ethiopia for more than 13 years in government and non-governmental organizations. He worked for African Development Bank (AfDB), USAID- and EU-funded projects with ACDI/VOCA and GIZ across Ethiopia. He also worked with private organizations and development organizations as a business development consultant. Fikadu has published one journal and over 15 nationally published working documents on environment- and development-related issues. He also took a lot of short-term trainings in Israel and Kenya and in the country to boost his career. He knows Ethiopia Government development policies and strategies well and has sound knowledge of environment, forest and climate change-related elements. For this USAID assignment commissioned to The Cadmus Group, Fikadu is contracted by the group staff and worked in Ethiopia as an environmental policy analyst.

ANNEX F: INDICATOR DEFINITIONS

ECONOMIC GROWTH	
EG3.1	Number of households benefiting directly from USG assistance under Feed the Future
EG.3.1-12	Number of agricultural and nutritional enabling environment policies analyzed, consulted on, drafted or revised, approved, and implemented with USG assistance
EG3.1-13	Number of households with formalized land with USG assistance
EG.3.2-1	Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training
EG.3.2-2	Number of individuals who have received USG-supported degree-granting agricultural sector productivity or food security training
EG.3.2-5	Number of public-private partnerships formed as a result of USG assistance
EG3.2-18	Number of hectares under improved technologies or management practices with USG assistance
EG.3.2-20	Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved organization-level technologies or management practices with USG assistance
EG3.2-22	Value of new private sector capital investment in the agriculture sector or food chain leveraged by Feed the Future implementation
EG3.6	Farmer's gross margin per hectare obtained with USG assistance
EG3.7	Farmer's gross margin per animal obtained with USG assistance
EG3.9	Number of full-time equivalent (FTE) jobs created with USG assistance
EG.4.2-1	Total number of clients benefiting from financial services provided through USG-assisted financial intermediaries, including non-financial institutions or actors
EG.4.2-2	Number of financial intermediaries serving poor households and microenterprises supported by USG assistance
EG.5-2,	Full-time equivalent employment of firms assisted under USG programs
EG.5-3	Number of microenterprises supported by USG assistance
EG.6-1	Number of individuals with new or better employment following completion of USG-assisted workforce development programs
EG.6-2	Number of individuals with improved skills following completion of USG-assisted workforce development programs
EG.6-3	Number of individuals who complete USG-assisted workforce development programs
EG.7.1-1	Number of beneficiaries with improved energy services due to USG assistance
EG.10.1-1	Reduction of mercury release in metric tons to the environment due to USG assistance
EG.10.2-1	Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance
EG.10.2-2	Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance
EG.10.2-3	Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance
EG.10.2-4	Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance
EG.10.2-5	Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted or implemented as a result of USG assistance
EG.10.4-1	Number of specific pieces of land tenure and property rights legislation or implementing regulations proposed, adopted, and/or implemented positively affecting property rights of the urban and/or rural poor as a result of USG assistance
EG.10.4-2	Percent of individuals trained in land tenure and property rights as a result of USG assistance who correctly identify key learning objectives of the training 30 days after the training
EG.10.4-3	Number of disputed land and property rights cases resolved by local authorities, contractors,

	mediators, or courts as a result of USG assistance
EG.10.4-4	Percent of people with access to a land administration or service entity, office, or other related facility that the project technically or physically establishes or upgrades who report awareness and understanding of the services offered
EG.10.4-5	Number of parcels with relevant parcel information corrected or incorporated into an official land administration system as a result of USG assistance
EG.10.4-6	Number of people with secure tenure rights to land, with legally recognized documentation and who perceive their rights as secure, as a result of USG assistance
PEACE AND SECURITY	
PS.6.2-3	Number of USG supported events, trainings, or activities designed to build support for peace or reconciliation among key actors to the conflict
HEALTH	
HL.7.1-1	Couple Years protection in USG supported programs
HL.7.1-2	Percent of USG-assisted service delivery sites providing family planning (FP) counseling and/or services
HL.7.1-3	Average stock out rate of contraceptive commodities at family planning (FP) service delivery points
HL.7.2-1	Percent of audience who recall hearing or seeing a specific USG-supported FP/RH message
HL.7.2-2	Number of USG-assisted community health workers (CHWs) providing family planning (FP) information, referrals, and/or services during the year
HL.8.3-1	Number of people educated on tools, approaches, and/or methods for water security, integrated water resource management, and/or water source protection as a result of USG assistance
HL.8.3-2	Number of action plans implemented for water security, integrated water resource management, and/or water source protection as a result of USG assistance
EDUCATION	
ES.5-1	Number of USG social assistance beneficiaries participating in productive safety nets
ES.2.1	Number of host country tertiary education institutions receiving capacity development support with USG assistance
ES.2.2	Number of individuals attending tertiary education institutions with USG scholarship or financial assistance