FEDERAL DEMOCRATIC REBUBLIC OF ETHIOPIA

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NATIONAL REDD+ SECRETARIAT

NATIONAL REDD+ STRATEGY

(2016 - 2030)

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ACCRONYMS AND ABBREVIATIONS

A/F - Afforestation/reforestation

AD - Activity Data

AGB - Aboveground Biomass

AILAA - Agricultural Investment and Land Administration Agency

ANR - Assisted Natural Regeneration

BGB - Belowground Biomass

BUR - Biannual Update

BSM - Benefit Sharing Mechanism

C & P - Consultation and Participation

CBO - Community Based Organization

CDM - Clean Development Mechanism

CIFOR - International Center for Forestry Research

COP - Conference of Parties

CRGE - Climate Resilient Green Economy

CSA - Climate Smart Agriculture

DAs - Development Agents

DD(D & D)- Deforestation and forest degradation

DFID - Development Fund for International Development

ECS - Ecosystem Carbon Stock

EF - Emissions Factor

EIA - Environmental Impact Assessment

EINDC - Ethiopia's Intended Nationally Determined Contribution

ENDC - Ethiopia's Nationally Determined Contribution

ER - Emissions Reduction

ESMF - Environmental Social Management Framework

ESMP - Environmental and Social management Plan

FAO - Food and Agricultural Organization

FCPF - Forest Carbon Partnership Facility

FLALUA - Federal Land Administration and Land Use Agency

FRL - Forest Reference Level

FRSC - Federal Level REDD Steering Committee

GDP - Gross Domestic Product

GHG - Green House Gas

GRM - Grievance Redress Mechanism

GTP - Growth and Transformation Plan

INLUPP - Integrated National Land Use Plan and Policy

IPCC - International Panel for Climate Change

LAUD - Land Administration and Use Directorate

LIFT - Land Investment for Transformation Program

M & E - Monitoring and Evaluation

MEFCC - Ministry of Environment, Forest and Climate Change

MoANR - Ministry of Agriculture and Natural Resources

MoFEC - Ministry of Finance & Economic Cooperation

MoLF - Ministry of Livestock and Fisheries

MRV - Measurement, Reporting and Verification

NFMS - National Forest Monitoring System

NGO - Non-Government Organization

NFI- National Forest Inventory

NFMS- National Forest Monitoring System

NRS- National REDD+ Strategy

NTFPs - Non-Timber Forest Products

OFWE - Oromia Forest and Wildlife Enterprise

PAMs- Policies and Measures

PES - Payment for Ecosystem Services

PF - Process Framework

PFM - Participatory Forest Management

PSNP - Productive Safety Net Program

REDD Sec - REDD+ Secretariat

REDD+ - Reducing Emissions from Deforestation and forest Degradation and the conservation of forests, sustainable forest management and enhancement of forest carbon stocks in
developing countries
RPF - Resettlement Policy Framework

RRCU - Regional REDD+ Coordination Unit

RRSC - Regional REDD+ Steering Committee

RRTWG - Regional REDD+ Technical Working Group

RTWG - REDD+ Technical Working Group

SEA - Strategic Environmental Assessment

SESA - Strategic Environmental and Social Assessment

SFM - Sustainable Forest Management

SIS - Safeguard Information Systems

SLM - Sustainable Land Management

SLMP - Sustainable Land management Program

SLMS- Satellite Land Monitoring System

SNNPR - Southern Nations, Nationalities and People's Region

SWOT - Strength, Weakness, Opportunity and Threat

tCO₂e - tone carbon dioxide equivalent

TFs - Task Forces

UNFCCC - United Nations Framework Convention on Climate Change

WB - World Bank

WRIU - Wereda REDD+ Implementing Unit

WRSC - Wereda REDD+ Steering Committee

EXECUTIVE SUMMARY (To Be Developed)

1. 1 REDD+ at International Level

The global forest sector contributes 17% of the global greenhouse gas emission[1] and it could be addressed cost effectively. Since 2005, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) have been actively negotiating a policy initiative that entails the development and implementation of policies and measures (PAMs) that would contribute to climate change mitigation through forestry activities. This initiative is now known as REDD+, which stands for Reducing Emissions from Deforestation and forest Degradation, and (+) the role of sustainable management of forests, conservation and enhancement of forest carbon stocks in developing countries. The roadmap for the REDD+ mechanism was developed in Bali (Indonesia) in 2007 (COP13), and since then several countries have initiated national REDD+ program focusing on readiness activities. The global REDD+ mechanism seeks to support and reward developing countries for reducing their emissions from deforestation and forest degradation and for enhancing their carbon sequestration potentials. It involves a new way of curbing land use based emissions. The REDD+ policy framework primarily targets to reduce forest emissions through addressing drivers of deforestation aiming to conserve forest carbon stocks and to enhance carbon sequestration through implementation of REDD+ activities.

The UNFCCC established the process, rules and modalities for developing countries to access results based payments (RBPs) for their REDD+ policies and measures (PAMs).Under the Cancun Agreements of the UNFCCC (Decision 1/CP. 16), developing countries are encouraged to contribute to climate change mitigation actions in the forest sector by undertaking the following activities, as deemed appropriate by each Party and in accordance with their respective capabilities and national circumstances to reducing emissions from deforestation, forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks.Depending on countries circumstances, the REDD+ mechanismencourages to maximize co-benefits from forestry activities such as biodiversity conservation, enhanced hydrological functions and improved livelihoods.

The Warsaw Framework for REDD+ states that before receiving RBPs, developing countries need to have in place the four elements of REDD+ readiness: National REDD+ strategy (Action Plan), the National Forest Monitoring Systems (including the

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[1] IPCC, 2015

REDD+ MRV system), the Forest Reference Level (FRL) and Safeguards Information System (SIS).

Countries have to follow two distinct reporting procedures to access RBPs under the UNFCCC. The first is the technical assessment of the proposed FREL/FRL and the MRV of anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of REDD+ PAMs. The second part is reporting of mitigation results through a national Greenhouse Gas inventory (GHG-I), and report on emission reduction or carbon removals from implementation of REDD+ activities as technical annex of the Biannual Update Report (BUR). In addition, countries need to submit a summary of information on how the REDD+ safeguards are being addressed and respected throughout the implementation of REDD+ activities; and a link to their national strategy or action plan.

1.2 National Context of REDD+

The government of Ethiopia supports the global climate policy as well as the REDD+ mechanism as climate change mitigation mechanism. Ethiopia has been in the process of developing its REDD+ program since 2008. The Readiness Preparation Proposal (R-PP) was prepared in 2011 in a participatory way and its implementation started in January 2013. During the R-PP development, Ethiopia prepared an economy-wide climate policy, known as the Climate Resilient Green Economy (CRGE) Strategy. The CRGE Strategy was initiated in recognition of the vulnerability of the country to climate changeimpacts and the compelling need for greening Ethiopia's economy. As Ethiopia's economy is largely dependent on weather sensitive agriculture and hence vulnerable to climate change impacts, it is in the interest of the country to participate in the global efforts to curb climate change. The government of Ethiopia has takenthe bold step of shifting the development paradigm from a carbon intensive approach to a carbon neutral and climate resilient pathway.

The CRGEStrategy, which was officially introduced during COP-17 in Durban in 2011, is a clear manifestation of the leadership's commitment to pursue a carbon neutral development regime. The strategy has identified a number of low carbon emitting initiatives across key economic sectors (forestry, energy, livestock, agriculture, transport and industry), which can lead Ethiopia towardsits vision of building a climate-resilient middle-income economy by 2025.The successful implementation of theseinitiatives can help Ethiopia to reduce over 250 million tonnes of CO2e on an annual basis by 2030, compared to the BAU development path. The strategy aims to maintain the annual GHG level of the country at the 2010 level of 150 million tonnes of CO2e by 2030. The largest

share of emission reduction effort (50% of the national emission reduction target by 2030) is given as the responsibility of the forest sector. To implement forestry activities with significant abatement emission potential, REDD+ has been taken as a major investment instrument, and it is one of the four fast-track programs for realizing targets set in the Green Economy Strategy.

Since 2011, the government has aggressively embarked on operationalising the CRGE strategy and implementing low emission and climate resilient actions. The government has established a new institutional setup for the effective development and implementation of the CRGE strategy at all levels, from federal to district. The CRGE Inter-Ministerial Steering Committee is chaired by the Prime Minister's Office and comprises Ministers of the CRGE Sectors, with the National Planning Commission Commissioner providing overall oversight and responsibility for the realization of the CRGE vision. Line Ministries have also established CRGE units, with the overall responsibility of coordinating and facilitating the planning and implementation of sectoral CRGE strategies. The former Environmental Protection Authority (EPA) has been upgraded into the Ministry of Environment, Forest and Climate Change (MEFCC), in order to technically coordinate the delivery of the strategy. The Ministry of Finance and Economic Cooperation (MOFEC) has also established the CRGE Facility in order to mobilize and access climate finance from bilateral, multilateral and othersources, besides investment by the government.Now, the National REDD+ Program is coordinated by the National REDD+ Secretariat accountable to the Forest Sector of the MEFCC.

The REDD+ Program, which is now embedded within the national CRGE strategy and the National Forest Sector Development Program (NFSDP[2])is anticipated to contribute to the achievement of the CRGE targets through improved management of existing natural forests and expansion of forest cover through afforestation/reforestation (A/F). With 17.2 million hectares of forests covering 15.5%[3] of the national territory (following the revised national forest definition, MEFCC, 2015[4]; Figure 1), that is under threat with an annual deforestation rate of 0.54% (Ethiopia's FRL-revised submission to UNFCCC, 2016), and a large expanse of deforested lands, degraded forest areas, and degraded

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[2] The National Forest Sector Development Program (NFSDP) is an ambitious program, currently under development by MEFCC,that aims at transforming the forestry sector in Ethiopia. The targets include doubling forest cover by 20105, reducing national emissions by half in 2030, and increasing the GDP contribution of the sector from 4 to 8%.

[3] Ethiopia's forest cover, National Forest Sector Development Review Document, MEFCC, December 2016.

[4]In February 2015 Ethiopia adopted a new forest definition (MEF 2015) as follows:

'Land spanning more than 0.5 ha covered by trees (including bamboo) (with aminimum width of 20m or not more than two-thirds of its length) attaining a heightof more than 2m and a canopy cover of more than 20% or trees with the potentialto reach these thresholds in situ in due course (Minutes of Forest Sector Management, MEFCC, Feb. 2015).

lands suitable for forest restoration, Ethiopia has a huge potential for REDD+ implementation.
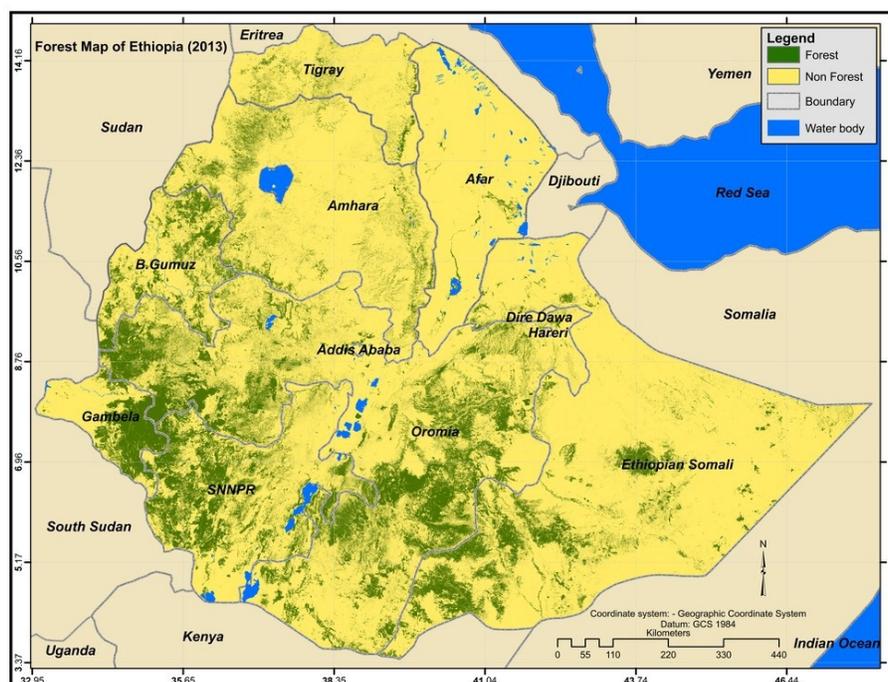
Figure 1: Extent of the forest cover under the current Ethiopia's forest definition

If forests continue to be deforested, there exists a risk that rural development will be impaired, livelihoods of forest dependent communities will decline and valuable ecological services will gradually dwindle. Thus, Ethiopia's interest to invest in forest conservation and forest restoration goes beyond emission reductions or removals. Much of the terrestrial carbon stock in Ethiopia occurs in areas that have the potential to generate co-benefits. Actions to secure more of these areas and their carbon and to improve management are likely to achieve substantial biodiversity, livelihoods and water resource related co-benefits. In particular, improved water resources on major water towers (mountains) of Ethiopia through increased forest cover will enable the country to generate sustainable hydropower from regulated and steady flow of surface water and would also allow irrigation agriculture for improved rural development and food security. Besides saving the existing natural forests, Ethiopia will plant 16.1 million ha of new forest to double its forest cover by 2025[5]. Therefore, Ethiopia recognizes the need to protect its forest resources and increase forest cover in order to establish itself on sustainable development pathway.

Through REDD+ Ethiopia is in a position to reduce GHG emissions and expand the forest area that can absorb carbon by implementing policies and actions (PAMs) that target to address not only forest emission from deforestation and forest degradation, but carbon removals through large scale forest restoration. These actions will help prevent further degradation of its natural capital including the soil, water   and

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[5] National Forest Sector Development Program Review Document, MEFCC, December 2016.

biodiversity resources. Against this background, Ethiopia has thus expressed interest to participate in the global REDD+ mechanism and the REDD+ process has been active since 2009, and now it is finalizing the REDD+ readiness

This National REDD+ Strategy has been prepared in response to the global requirements for countries to implement the Warsaw Framework for REDD+before receiving RBPs. The development of this strategy has been informed by several national and sub-national assessments and studies[6] , consultations, the CRGE process and[7] R-PP development. The National REDD+ Strategy identifies key legal, institutional, socioeconomic and technical drivers of forest loss and degradation that directly or indirectly contribute to the national emission. Further, it identifies barriers and opportunities for increased carbon removal through forest restoration. It also identifies the necessary targeted measures and enabling implementation frameworks for the REDD+ activities in the country.

The strategy has been prepared in a participatory way. Particular attention has been given to engaging the key REDD+ sectors such as agriculture, energy and forestry. A national REDD+ Strategy Preparation Core Team has lead the development of this strategy, and members of the team were drawn from the key REDD+ sectors (agriculture, energy and forestry), and a member from GGGI-government' technical partner. The development of the strategy also benefited hugely from the support of the National REDD+ Strategy Task Force, members composed of the key REDD+ sectors, women, youth, CSOs, academia and research organizations.

This strategy will be followed by a comprehensive action plan within one year that elaborates the required activities to address the drivers of deforestation and forest degradation and measures for increased carbon sequestration through forest restoration. The action plan will be incorporated into the Growth and Transformation Plans and implemented by the relevant sectors in line with existing sectoral policies and strategies.

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[7][3]Three national level and another two sub-national level assessments and analysis form the foundation for the development of this strategy including the following, and any reader is highly encouraged to consult these national reports:
- Analysis of legal and institutional framework for the Ethiopian REDD+ program
- Analysis of legal and institutional framework for the Oromia Forested Landscape Program
- Studyof causes of deforestation and forest degradation in Ethiopia and the identification and prioritization of strategic options to address those
- Studyof causes of deforestation and forest degradation in Oromia and the identification and prioritization of strategic options to address those
- Strategic Environmental and Social Assessment (SESA) for the REDD+ Process in Ethiopia

In the last four years, Ethiopia's REDD+ readiness process has succeeded in establishing the key design elements (National REDD+ strategy, national FREL/FRL; REDD+ safeguard instrument/Safeguard information system and NFM/MRV system) for the national REDD+ program implementation. Ethiopia's REDD+ readiness process has been technically and financially supported by the World Bank's FCPF/BioCF. Following a technical review of the development of Ethiopia's REDD+ readiness elements, the FCPF's Participant Committee (PC) officially endorsed Ethiopia's R-Package in September 2017 and the REDD+ readiness process will soon be officially closed in June 2018.

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2.1 Vision

The National REDD+ Strategy (NRS) contributes effectively and to a large part to the CRGE strategy and Ethiopia's NDC greening targets in 2030, while maximizing national co-benefitsthereby adding to the global climate change mitigation efforts through improving forest resource and land management.

2.2 Mission

The mission of the NRS is to reduce greenhouse gas emissions and increase carbon removals in the forest sector by implementing policies, laws and regulations, and increasing investments to enhance conservation of forest resources and forest restoration and by improving the functioning and capacity of national andsub-national institutions in order to realize the green growth vision of Ethiopia, and enhancing the associatedbenefits of biodiversity conservation, improved hydrological functions of landscapes andbetter livelihoods.

2.3 Goal and Objectives of the National REDD+ Strategy

The primary goal of the NRS is to reduce deforestation and forest degradation, while promoting sustainable management of the forest resources and enhancing forest carbon stocks through afforestation and reforestation.

REDD+ program in Ethiopia broadly targets to address drivers of deforestation and forest degradation and bring significant part of the country's degraded areas under forest cover through forest restoration, afforestation and reforestation activities. The strategy focuses on reducing deforestation, forest degradation and enhancing forest carbon stock by promoting conservation and restoration of forest ecosystems; strengthening governance and development of local capacities and putting in place enabling environment for sustainable forest management.

The national REDD+ strategy provides strategic guidance for the implementation of an effective and efficient national REDD+ program by (1) strengthening institutions at all levels, (2) improving the legal and regulatory frameworks, (3) promoting stakeholders engagement and coordination, and (4) by implementing strategic investments for improved forest management and livelihoods   .Specifically, the National REDD+ Strategy intends to provide guidance on:

- Addressing policy, legal and institutional issues related to land use and forest governance to enable forest conservation (addressing drivers of forest loss) and forest restoration
- Establishment of strong institutional mechanisms for an effective cross-sectoral coordination for the NRS implementation;
- Developing a robust and transparent approach and methodologies, consistent with international standards & procedures, for setting the baseline emissions and removals, and designing an effective MRV system for determining verified emissions reductions and removals targeted to receive payments for performance;
- Mobilizing resources (including non-results-based funding)and intensifying investments in forestry for increased emission reductions and carbon removals;
- Establishing and operationalizing a transparent REDD+ financial management mechanism and a fair benefit sharing scheme;
- Identifying needs and taking appropriate measures for building national and sub-national capacity to support REDD+ activities of planning, implementation, monitoring and reporting at all levels;
- Promotion of knowledge generation and strengthening public awareness, communication and information sharing on REDD+ issues to increase understanding and ownership of the program by various actors at different levels;
- Establishing mechanisms for active participation and engagement of a wide range of stakeholders including communities and the private sector in NRS implementation; and
- Implementing safeguards program for ensuring that Ethiopia's REDD+ implementation observes globally acceptable social and environmental safeguard standards particularly the development of a benefit sharing mechanism (BSM), consultation and participation plan (C & P) and Grievance Redress Mechanism (GRM).

2.4 Alignment of the NRS with objectives of national policies and strategies

 The successful implementation of REDD+ will guarantee that the forest sector achieves 50% of the national emissions reduction target set in the CRGE strategy and Ethiopia's NDCby 2030 and leads the realization of carbon neutrality across the economy. Table 1 below summarizes the relationships between the NRS and major national policies and plans.

Table 1. Alignment of the REDD+ objectives with Ethiopia's GTP and CRGE

Broader National Objectives	REDD+ Objectives	Linkage between REDD+ and National objectives
CRGE[8]/NDC Objectives Building a green economy with zero net emissions by 2030 through the implementation of sectoral emissions abatement strategies that also improve resilience to climate change.	To contribute to CRGE goals of achieving net zero emissions by 2030 through implementation of forestry strategies.	The forestry sector, with REDD+ as its major mitigation lever, will contribute 50% of the total emission reduction.
GTP[9] Objectives Boosting agricultural productivity, strengthening the industrial base, and fostering export growth with the objective of lifting Ethiopia's economy to middle income status by 2025.	To contribute to the GTP-2 goals of increasing the forest cover of Ethiopia from 15.5% to 20%, improving local community livelihoods and enhance the contribution of forests to the national economy,	Sustainable financing through REDD+ will support investment in forest management, forest conservation, and forest restoration. The forest sector contributes11.2% to the national GDP[10]

2.5 Principles of the NRS

The Strategy envisages that implementation of REDD+ is based on a set of principles that ensures climate benefit along with co-benefits (biodiversity and livelihoods) while respecting the rights of local communities including forest dependent communities and national interests. The following principles underpin the planning and implementation of the national REDD+ program.

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[8] CRGE Strategy: Climate Resilient Green Economy
[9] GTP: Growth and Transformation Plan
[10]Assessment of the socio-economic value of forest products for rural communities in Ethiopia (Final Report), MEFCC, April 2016, Addis Ababa, Ethiopia.

- **Relevance**: REDD+ should be able to contribute to greening the country's economy through leadership on addressing land use based emissions.
- **Equity**: REDD+ contributes to sustainable and equitable development by strengthening the livelihoods of forest-dependent communities.
- **Effectiveness**: REDD+ demonstrably contributes to the greenhouse gas emission reduction by working towards a global objective of climate change mitigation and associated co-benefits.
- **Transparency**: REDD+ activities are transparently undertaken to ensure a clear and easy to understand implementation process for all stakeholders.
- **Accountability**: REDD+ implementation is fully accountable to the people and Government of Ethiopia and the international community in terms of relevance, process, funding, and results obtained.
- **Commitment**: REDD+ implementation demonstrates Ethiopia's commitment to global climate change mitigation efforts.
- **Efficiency**: REDD+ programs in Ethiopia constitute long-term activities that result in optimal financial, ecological, and social benefits.

2.6 Phased Approach to REDD+ Strategy Implementation

With atimeframe of 15 years, the NRS implemented in phases, isdesigned to realizing objectives of the forestry sector's potential contribution to climate change mitigation (50% of the total national emissions reduction in 2030) in a realistic planning and implementing of REDD+ PAMs. Thus, although the NRS eventually is implemented at national scale, Ethiopia will initially prioritize REDD+ PAMs for addressing deforestation in hotspot areas and restoration along natural forest areas. Accordingly, the strategic period for implementation of the planned activities is divided into short-term, medium-term and long-term phases.

1. Phase I: Short-term implementation goals(2016-2020):

In the short term (Phase I) , the NRS focuses on preparing the national REDD+ action plan, improving enabling conditions (forest legislation, land allocation, MRV, financing, forest extension, inter-sectoral coordination and institutional capacity) for REDD+ implementation, operationalizing the national forest monitoring system, mobilizing non-results based (upfront) investments, and designing and implementing prioritized REDD+ policies, actions and measures in order to achieve a 25% reduction in national deforestation rate, while consolidating experiences for forest restoration.

2. Phase II: Medium-term implementation goals (2021-2025):

In the medium term, NRS will focus on increased investments and scaling up REDD+ PAMs at national scale and starts operationalizing results based payment (RBP) at sub-

national levels. The main target in this period is to bring net deforestation to zero (i.e., rates of deforestation and afforestation will be equal).

3. Phase III: Long-term implementation goals (2026-2030):

This phase rolls out REDD+ PAMs at full national scale and operationalizes national RBPs. In this period, Ethiopia's forests and land areas will become a net carbon sink and address 50% of national emission reduction target in the CRGE strategy by 2030.

Chapter3.DRIVERS OF DEFFORESTATION AND FOREST DEGRADATION IN ETHIOPIA

The forest resources of Ethiopia play critical roles in providing valuable ecological and economic resources for the country's overall development, and in particular rural population in forest regions which are heavily dependent on these resources for their livelihoods. Managing forests sustainably and equitably will be essential for maintaining the ecological integrity, maintaining or enhancing freshwater supplies, protecting biodiversity and improving rural livelihoods. Nevertheless, Ethiopia's remaining forest resources are under threat, *inter alia*, from agricultural expansion and unsustainable fuel wood collection, inadequacy of legal and regulatory frameworks coupled with their poor implementation, institutional instability of the forest sector and poor capacity, all these compounded with economic, cultural and demographic factors.

Ethiopia has been losing about 92,000 ha (0.54%) of forest annually between 2000 and 2013 (Ethiopia's FRL, 2016). It has historically lost most of its forest cover in the north and central areas from various forces, and these areas now require large scale restoration. Recent deforestation occurs mainly in the remaining Moist Afromontane Forest in the southwest and southeast, and the Dry Forest areas in western lowlands (*Combretum-Terminalia*woodlands) (Figure 2), and must be priority areas for intervention. On the other hand, Ethiopia has been active in implementing Participatory Forest Management (PFM[11]) for conservation of its natural forests, and forest restoration through watershed development activities (tree planting and area closure[12] on degraded lands) over the past decades. Since the 1970s, Ethiopia has also been

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[11]Participatory Forest Management (PFM) is essentially a political and socio-economic arrangement through which communities and their elected leaders are made autonomous and accountable in their decision concerning forest governance.It is a mechanism where partnership between the state and community is negotiated over forest resource ownership, management and benefit sharing, as the case may be. It is about shared ownership, management and use of local forest resources through the creation and sustenance of self-nourishing community institutions

[12]The practice of rehabilitating degraded lands through establishing area closure has been traditionally exercised for centuries around church boundaries in Ethiopia by restricting the use of forests around churches..Nowadays, establishing area closure is one of the most widespread and successful forms of rehabilitating degraded lands in Ethiopia. It involves protecting areas mainly through social fencing from any form of cultivation, cutting trees and shrubs, or grazing by livestock.

implementing large scale plantation programs aimed at meeting the ever increasing demand for industrial wood and other forest products. The current area estimate for plantations is at 972,000 ha including commercialplantations, small holder eucalypt woodlots and community forests.

Despite that effort, the rate of afforestation (forest gain) has been about 19,000 ha annually between 2000 and 2013, about a-fifth of annual forest loss. The forest gain mainly observed in the Dry Afromontane areas has likely been a result of area closure activities (forest restoration) in central and northern highlands and growing of eucalyptus woodlots by small holder farmers (Figure 2). Consequently, the net deforestation has been positive by about 72,000 ha annually over the analysis period. The NRS thus broadly targets to intensify efforts of both protecting the existing natural forest resources while also increasing investments on forest restoration.

Deforestation and forest degradation are caused by both direct and underlying factors. Direct drivers of deforestation are (1) small scale agricultural expansion, (2) large scale agricultural investment, (3) forest fire and (4) infrastructure development (e.g., roads providing access to agricultural settlers). Forest degradation is caused by (1) increased wood extraction for fire wood, charcoal and construction, (2) livestock overgrazing and (3) in some places (South west Ethiopia) traditional coffee farming gradually degraded forests into coffee agroforestry while in other places (particularly in South central Ethiopia) the expansion of the cash crop Khat (Catha edulis) gradually encroached into forested sites. The agents of deforestation are thus, smallholder farmers, immigrants, investors, illegal loggers, charcoal producers, local communities, pastoralists, and farmers.
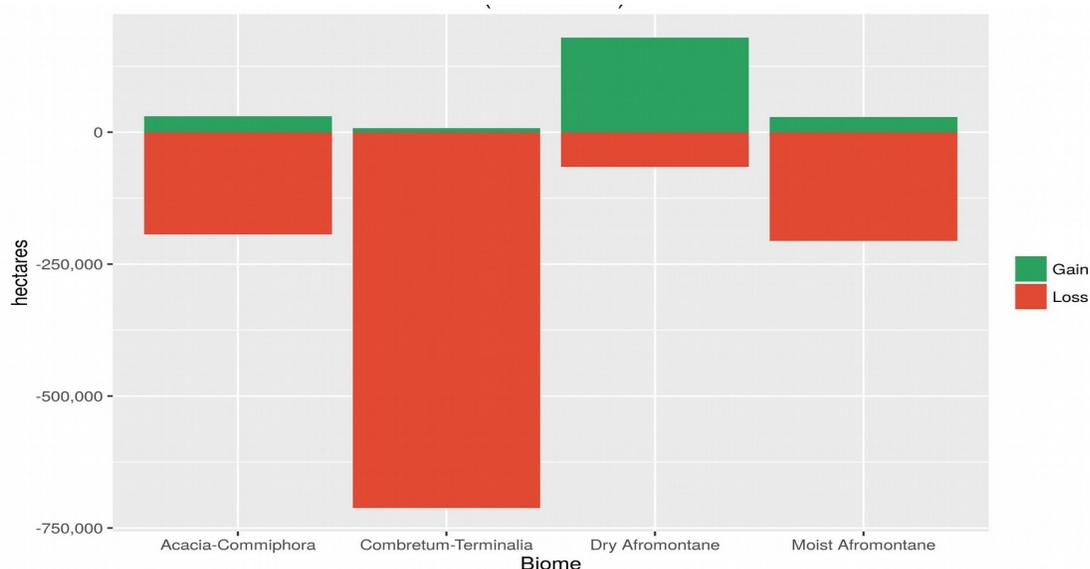
Figure 2: National forest area change detection 2000-2013 by biome

The indirect drivers of deforestation and forest degradation are:

(1) Absence of land use planning
(2) Inadequacy of forest laws and poor implementation associated with poor institutional capacity and low level of awareness of the justice system on forest resources,
(3) Institutional instability and low capacity of forestry and related institutions
(4) Poor inter-setoral coordination and resulting policy disharmony among sectors,
(5) Unclear tenure/ forest user rights (including carbon rights),
(6) Inadequate incentives to various interested actors from forest management and unclear benefit sharing scheme and poor participation of local communities and the private setcoron SFM
(7) Population growth coupled with poverty

Due to pressure from these factors, the forestry sector is the second largest contributors (37%) of the national GHG emissions in the country (CRGE Strategy, 2011) after the agriculture sector. Under the BAU scenario, enhanced pressure on forests will lead to an increased rate of deforestation and forest degradation, which will ultimately deplete the natural resource base negatively affecting the performance of the economy in the long term..The NRS is designed to address these drivers and the its implementation should be able to bring about positive attitude on all actors at all levels, large scale investments and resulting climate change impacts and other environmental benefits.

3.1Direct causes of forest-based emissions in Ethiopia[13]

Table 2below summarizes the drivers and agents of deforestation and forest degradation in Ethiopia, which are described in details in the subsequent section.

Table 2: Drivers and agents of deforestation and forest degradation and constraints on forest restoration in Ethiopia

Drivers	Type of Drivers	Agents
Direct	Small-scale agricultural conversion	Small-holder farmers, new settlers

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[13] Forest-based emissions, in the context of this strategy, refers to emissions due to land use changes resulting in deforestation and forest degradation mainly caused by agricultural activities including crop farming, livestock rearing, energy demand and incidence of forest fires.,

	Large-scale agricultural conversion (investment)	Implementing institution/Investors
	Unsustainable wood extraction for fuel and construction	Illegal loggers, local community, small/large scale wood industries, migrants, refugees
	Livestock grazing	Pastoralists, farmers
	Forest fire	Natural, local farmers
Indirect (Underlying)	Inadequacy of the forestry legal framework and weak law enforcement	Implementing institution
	Lack of long term finance and human resources to support the effective implementation of forest sector plans, policies and laws	Government policy makers /implementing institutions
	Limited governance and monitoring capacities of institutions in the forest sector	Implementing institutions
	Unclear tenure/ forest user rights (including carbon rights)	Policy makers/Implementing institution
	Low levels of stakeholder participation and involvement in the forest sector	Policy makers/Implementing institution
	Absence of clear benefit sharing mechanisms	Policy makers/Implementing institution
	Lack of adequate incentives for private sector to invest in forestry	Policy makers/Implementing institution, the private sector
	Population growth coupled with rural poverty increasing dependence on forest resources	Overall-economy
	Absence of Land Use Planning	Policy makers/Implementing institution
	PFM related implementation gaps	Implementing institution
	Overlapping institutional mandates and inappropriate delegation of mandate	Implementing institution
A/R and	Lack of incentives for involving private	Policy makers/Private

Restoration challenges	investments in forestry development	investors
	Absence of out grower schemes for small holder plantations	Policy makers/Implementing institution
	Low seedling survival and poor forest establishment due to technical and management problems	Implementing institution/Research institutions
	In appropriate species-site matching	Implementing institution/Research institutions
	Absence of land use plans/laws for land development according its capability and national needs limiting availability of for A/R	Policy makers
	Lack of technical backstopping from national to lower level actors	Implementing institution/Research institutions
	Lack of coordination among relevant stakeholders	Implementing institution

Direct causes of deforestation

Expansion of **small scale and large scale agricultural** activities were identified as major drivers of deforestation and forest degradation.The natural growth of population in the forest areas coupled with the continued spontaneous in-migration into those areas has resulted in increased rate of deforestation due to *expansion of small-scale agriculture*. *Large-scale agricultural investment* (such as coffee and tea plantations, irrigated farming, cotton, sugar cane and oil crop production, etc.) sometimes include conversion of extensive natural high forests and woodlands into non-forest land. While small scale agricultural expansion distributed across all forest regions and the *large-scale agricultural investment schemes*– both private and state owned are becoming increasingly important mainly in Gambella, Benishangul-Gumuz, Afar and to a limited extent also in SNNP and Oromia regional states. Further, traditional **shifting cultivation** in the western lowlands causes significant deforestation through the application of fires to clear forestlands.

Forest fires caused by human activity results in destruction of woodlands and high forests of the country. These are rather common in the lowlands of Gambella, Benishangul-Gumuz, Tigray, Afar, Somali and SNNP regions. **Infrastructure development** (particularly road network) can directly lead to forest clearance as it

opens up and facilitates access to agents which may impact on forest resources. However, the indirect effect of road development on deforestation can become significant by providing access to illegal farm settlers. **Mining** and dam construction are increasingly having impact on forest loss. Although site specific, coffee and *khat*(a stimulant shrub with importance in generating significant cash income) growing practices also lead to forest degradation.

Additional factors (though to a limited degree) directly driving forest clearance include legal and illegal **settlement** (e.g, BenishangulGumuz, SNNPR) in the vicinity of forested landscapes often resulted in gradual but significant decline in forest cover in specific parts of the country. An equally important but spatially-specific driver of deforestation is the impact of **refugees** on forest resources (mainly woodland). This is more pronounced(as noted in the consultation feedbacks in these regions) in parts of Gambella, Tigray and Ethiopia-Somali regions as the refugee population largely depend on the woodland resources for construction and firewood. Encroachment of woodlands and shrub-lands by *invasive species* has resulted in significant change of the vegetation and leading to complete replacement of the original woody vegetation (e.g. in Borana, Afar and Ethio-Somali regions)

Direct causes of forest degradation

Thedependence on*biomass energy* is high across all regions and this has a huge pressure on the native forests. **Unsustainable*xtraction of wood for fuel***(charcoal making, branches, leaves and twigs for firewood) are the main causes of forest degradation in the country. ***Traditional charcoal production*** is a key driver of forest degradation in the dry forest areas, and its impact on the forest resource is significant as it requires about six times the amount of wood to produce 100kg of charcoal. Charcoal is illegally produced from high forests and woodlands and charcoal production has shown increasing trend almost everywhere[14].

An increasing *livestock population combined with* **free grazing**that leads to overgrazing in forest areas is the main driver of forest degradation (especially degradation of the woodland vegetation). Despite some changes recently, inmost parts of the country, *free grazing*still causes forest degradation and negatively impacts forest regeneration. Forest conversion to grassland holds a significant share of greenhouse gas emissions in Ethiopia, according to the findings of the national drivers of deforestation and forest degradation study.

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[14] Bekele, M. and Girmay, Z., 2014, Reading through the charcoal industry in Ethiopia: production, marketing,
consumption and impact. Forum for Social Studies.

Forestry-related drivers offorest degradation are illegal and excessive wood extraction in the remaining high forests and dry forest areas or woodlands. Wood extraction for industrial and construction purposes distributed across the forest regions is also another driver of forest degradation. Forest degradation in these areas is often driven by **urbanization** and the subsequent demand for wood (fuel or construction).

3.2 Underlying drivers of deforestation and forest degradation

The direct drivers of deforestation and forest degradation are manifestation of several ***underlying factors***. The underlying causes of deforestation and forest degradation in Ethiopia are principally linked with policy, legal and institutional frameworks. A synopsis of the various underlying drivers of deforestation and forest degradation is given in the following section.

3.2.1 Low policy priority/profile of the forest sector due to low level of national awareness on significance of forestry for sustainable national development: The perception that forest sector is a single sector with limited contribution to the national GDP is dangerously erroneous. Forestry provides both products for the economy and indirectly support the economy by providing crucial ecosystem services.Given the rugged and mountainous terrain of the country, forestry plays critical roles for supporting sustainable development in Ethiopia. Globally, it is well established that there is a strong link between forest cover and water resource availability in the mountains and their downstream areas. Increasing forest cover in the highlands of Ethiopia (the water towers) will dramatically improve their hydrological functions through infiltration and soil protection thereby reducing floods while increasing availability of surface and ground water across the country. Water resource is a strategic resource for Ethiopia as this resource could be harnessed to generate hydropower sustainably, be used for irrigation agriculture, and even could be exported to nearby dry land courtiers for generating hard currency. Forest development can also have positive impact on other sectors such as tourism and wildlife development, besides its role in conservation of animal and plant diversity. Millions of Ethiopian also depend on forest resources for their livelihoods. Forests also increase resilience of communities and ecosystems to climate change impacts such as droughts and floods, while also positively influencing climatic stability.

There is a critical need for continuous awarenesscreation on the positive and transformational impacts of forests in various sectors of the Ethiopian economy and ensuring its sustainability to the leadership and law makers. This would eventually lead to recognition of forestry as a pillar of our development strategy.

3.2.2 Absence of a national land use policy and Land-use planning: Land use planning is essential for long-term sustainable land use. The objective of achieving emissions reductions from the land use sector should be incorporated within broader

efforts of land-use planning in order to synergistically promote environmentally sustainable, socially sound and economically viable land uses, directing economic activities to where they are most suited while avoiding conflicts between land uses. The ability to ensure coordination of multi-sectoral land-use activities is crucial in this respect. Effective land-use planning in turn should also be closely connected to tenure recognition processes (e.g. certification) and should systematically take into account existing land tenure rights. Despite its important place in the socio-politicaleconomic sphere of the Ethiopian people, land has been historically used without considering its potential for sustainable development. Discussion on the need for land use planning has been around since the 1980s.No national land use policy and land use planning framework have yet been adopted. A recent initiative lead by the PrimeMinister's Office should be supported with commitment by all stakeholders to resolve this longstanding issue. In a country like Ethiopia whose economy largely depends on agriculture, the absence of a national land use policy and land use planning at different scales is a big void in the national policy framework which indirectly contributed to the increasing loss of the forest resources.

Inadequacy of the legal framework for forestry :The legal framework for forestry development lacks completeness.Forest policy and proclamation was enacted in 2007, but instruments for translating the proclamation into action such as forest regulation and directive have not been prepared so far. A new forest proclamation has been under preparation by MEFCCsince early 2014 to address the gaps and accommodate issues related to climate change, carbon and forestry.

Weaklaw enforcement: Apart from the lack of legal instruments, theweak law enforcement of existing forest laws leading to poor performance on forest management in the country. Even where there are provisions and institutions responsible for forest protection in some regions, poor legal consequences due to low level of awareness by law enforcing agents, encourages illegal activities in forests. For instance, although the federal and regional forest proclamations (e.g., in Oromia) clearly show applicable legal consequences for forest trespassers and offenders, *enforcement* of those penalties remains limited due to lack of guidelines and implementation procedures.

Inadequate Institutional Capacity: Ethiopia has adequate legal and policy frameworks for the conservation, use and management of natural resources, including forests. However, persistent inadequate institutional capacity, and sometimes indifference and lack of accountability thereof, implementation of the laws and polices has been traditionally very weak. The specific barriers include lack of financial and human resources, and or poor institutional capacity; absence of proper implementation guidelines in place, and for long time, structuring and restructuring of the forestry

institutionat the national and regional levels, limiting the forest sector's capacity to implement the existing legal frameworks.Institutional gaps still exist pertaining to appropriate forest sector institutional structure at different levels (at federal until recently and now at regional to local levels) andthe limited capacity (technical and financial) to ensure forest governance.Frequent restructuring of forestry institutions and low level of public investment can be linked to the low level of awareness on the significance of forest resources for sustainable economic development by stakeholders at all levels.

Weakcoordination among sectors is another critical underlyingcause resulting in mismanagement of land and forest resources. Effective REDD+ implementation relies on cross-sectoral coordination and the development of relevant capacities among institutions overseeing various activities affecting forest activities across the different levels of government. The success of REDD+ coordination at the federal level in Ethiopia is dependent on institutional arrangements with coherent functional linkages among the various institutions relevant in the forest, agriculture and energy sectors, as well as ensuring coherent functional linkages with their counterparts at regional level. Currently, the main government institutions responsible for key REDD+ agenda such as forestry, environment, land use, livestock production at national level are the MEFCC, the MoANR, and MoLF. These line ministries should work in coordination so as to implement effective REDD+ Program.

While limited coordination on forest and land use sectors now takes place through the Inter-Ministerial Committee of the CRGE Initiative, there are no specific coordination mechanisms in place specifically devoted to the land and forest issues. The REDD+ Steering Committee may play a role here in the future, though it currently only has the mandate to steer the REDD+ readiness process and has not so far focused on substantive policy issues. Given most of the drivers of land use change emanate from sectors outside the forest sector, coordination between MEFCC and other ministries, in particular MoANR and MoLF is key. This is especially so until MEFCC's corresponding institutional structures at regional and lower levels are strengthened. Currently however, institutions, or individuals within institutions have little incentive to coordinate or engage in activities outside of their mandates – they receive annual budgets to undertake specific mandates, and have no legal requirements or incentives to coordinate or integrate activities. Further, the roles and responsibilities of many institutions overlap on important issues. In some cases this arises from a direct conflict out of lack of legal clarity or changing roles, while in others it is a natural consequence of the close relationships between certain sectors, such as forestry and agriculture. In each case, in the absence of working mechanisms or processes for coordination, such overlaps can limit policy coherence and affect implementation.

Poor tenure system and unclear forest user right is another underlying cause of deforestation, forest degradation, and poor land husbandry. Clear tenure system is another condition that makes successful REDD+ implementation more likely. Security of tenure is often crucial in incentivizing actors to make long-term investments (financial or otherwise) in land and forests. Tenure security is also necessary to enable actors to successfully manage their forest land without interference from intruders, who may seek to utilize the land in ways that conflict with REDD+ goals, while also empowering them to play a role in enforcement of forest law in the context of limited government capacities. In federal systems, federal-level laws should ensure that certain basic conditions of land and forest tenure are defined for the national territory. This has left particularly the forest resources 'open access' and everybody has access and no proper control was exerted from the formal or customary mechanisms. This has remained a disincentive to forest-dependent communitiesto invest in forest management and development activities. In particular, the absence of specific recognition of community forest ownership in the Federal forest law limits the potential for community ownership. This implies thatprivate ownership is the only form of community ownership.The status of communal rights are given a low priority also by the land proclamation. This potentially limits tenure security in the event that communities want to undertake afforestation or assisted natural regeneration (ANR) on their land or participate in PFM. This is important for community forestry, since the existing Federal Forest Proclamation indicates that rights of forest owners to forest land shall be exercised in accordance with the land proclamations.

Absence of fair and clear benefit sharing mechanisms that define the rights of local communities to share economic benefits from forest management programs, the lack of institutional instruments such as standards, directives or guidelines as appropriate for its implementation created precedence for loose management and protection of the resources by local communities. The focus currently is on promoting forest management, particularly natural forest and towards conservation rather than maximizing benefits to local communities. A related problem is inadequate incentive to *private investment in forestry*development, that are crucial for reducing the timber and fuel wood supply gap in a sustainable manner thereby reducing pressure on natural forests.

The **rapidly increasing population** of Ethiopia will continue to depend on natural resources, and this will put more pressure on the resources unless appropriate measures are taken. In the context of forests, growing populations imply higher demand for fuel wood and cropland (leading to deforestation and land degradation).

3.3 Other Legal and Institutional Gaps from REDD+ Perspective

Inadequate provision onParticipatory Forest Management (PFM)

PFM facilitates forest conservation, development and utilization through community participation and empowerment. Two decades of experience showed that PFMpractices elsewhere in Ethiopia has proven to be successful and the mechanism is considered to constitute one of the most promising strategies for REDD+ implementation in the country. PFM is considered to be most effective in situations where significant management responsibilities are devolved to communities and sufficient incentives are provided for communities to invest in forest management. This is particularly important in the REDD+ implementationwhereforest conservation enhances co-benefits, in particular livelihoods improvement.Ethiopia now considers PFM as a major vehicle for the REDD+ implementation.

However, reviews of Ethiopia's relevant legal frameworks shows that there are loopholes in the legal documents with regard to PFM that need to be addressed for its effectiveness. The government should provide legal recognition for PFM and aim to balance the need to ensure that regional states, responsible for management of natural forests, sufficiently commit to PFM in terms of devolving meaningful rights and providing adequate technical support

There are no adequate provisions on PFM in the national legal framework, and there exists differences among regional states. The Oromia Forest Proclamation, for example, recognizes community forests as a distinct category of ownership and provides a clear and secure form of forest right that can be used for PFM. Forests under PFM are safer in terms of land use change, such as conversion to agriculture. This has been considered more favorable than the Federal legal framework, which recognizes community ownership only under the umbrella of 'private forests'. ***The federal proclamation and laws in most regional states still need to recognize the PFM approach and incorporate it in the legal book.***

Further improvements are needed on PFM so far. Early lessons from PFM in Oromia show higher conservation outcomes including reduced deforestation, improved overall forest conditions increased wildlife populations and reductions in illegal logging. However, The conservation outcomes have not been matched with improvements in livelihoods, and thus measures should be taken for imprving livelihood outcomes.

In addition, local governmentsare often reluctant to grant significant rights to communities reducing trust on level of ownership limiting success and expansion of PFM. Currently, administrative contracts give the government party with the prerogative to terminate them, and though compensation is payable, this creates significant insecurity for community associations and other entities entering into PFM agreements with mandated government institution for forest administration. There is also not consistent guidance on benefit sharing form the joint forest management efforts. PFM

has long been the role of NGOs and most of the PFM activities accomplished so far are project-based. Consequently, sustainability of the PFM arrangements are impaired due to a weak link between projects and relevant government institutions on one part and the failure to take-up the PFM activity as part of the government's activity. In this regard, MEFCC's federal and lower level structures should have departments or units responsible for sustainable forest management through PFM. This requires capacity building in terms of personnel and logistics of units responsible for sustaining PFM activities.

Delegation of the Environmental Impact Assessment (EIA) Mandate

Environmental impact assessment (EIA) – procedural instrument that requires the assessment of a project's environmental impacts – is a potentially important tool for ensuring the success of REDD+. If appropriately designed, EIAs can ensure that the potential effects of projects on forest areas or land-use change are identified at an early stage and mitigated or avoided. To be effective in this regard, EIA systems should fulfill a number of requirements:

- They should apply to all major project types that can potentially have major impacts on forests and land-use change, including agriculture, forestry, mining, hydropower and infrastructure projects, and impacts on forests and land-use changes and on carbon balance need to clearly identify.
- The results of an EIA should be directly linked to project approval. The EIA clearly specifies the mitigation measures for each identified impact or risk. An EIA might indicate that a development would have a significant negative impact on the environment, without mitigation. In this instance, the mandated government office, in approving a proposal may wish to make implementation of mitigation measures on condition of approval. The proponent may then be required to submit a detailed environmental management plan (EMP).   Only once the adequacy of the EMP is agreed to, would the EIA and EMP be approved and development allowed to commence.
- Proponents should be required to carry out EIAs early in the project cycle, ideally before authorization to enter the project development stage is given, and at least early enough so as to allow for adequate modifications to the project design to be made to avoid or mitigate identified negative impacts.
- The authority responsible for reviewing EIAs and issuing approval should be independent and impartial and have sufficient capacities for ensuring their accuracy and adequacy.
- A system for following up on compliance with mitigation measures is in place and is consistently implemented.

EIA systems exist alongside systems for Strategic Environmental Assessments (SEAs) that assess the potential impacts of policies, plans and programs, and that these systems are integrated, e.g. through linking the approval of EIAs to compatibility with relevant policies and plans, for which SEAs have been successfully completed. The social aspects in policy, program, and plan could be given more emphases by the use SESA rather than SEA as is it gas been done and given due consideration for social and environmental aspects in the SESA that was developed as safeguard instrument for managing risks related to REDD+ implementation.

The major gap identified in this regard is that the responsibility for reviewing EIAs is currently delegated to thesectoral entities which undertake project activities. This creates a clear conflict of interests, since the same entities charged with promoting development in the respective sectors are those charged with reviewing their compliance with environmental standards, and this is inconsistent with applicable legislation and policy documents. While MEFCC is in the process of establishing some oversight provisions, this has yet to be implemented and it is not clear how effective this will be in terms of enforcement. Existing MEFCC powers to overturn approvals in cases of gross oversights have never been used. Ultimately as long as responsibility remains with sectoral organs conflicts of interests will remain.

Provisions seeking to protect forests in most guidelines on the EIA implementation in specific sectors or activities are generally weak. Provisions that require replacement of forests are general and often not compulsory. Follow up on implementation of Environmental and Social management Plan(ESMPs) is typically weak, leading to substantial implementation gaps. This appears to be,at least partially, a result of lack of incentive in sectoral entities to follow up, which MEFCC's overall role to ensure supervision appears to be weak in terms of technical and logistical capacity. It is also very rare that penalties are applied in cases of non-compliance,To-date, there has been no federal prosecutions based on non-implementation of EIAs, though in some cases administrative processes are applied to resolve issues, which may include finding compromise solutions.

In practice, EIAs are often undertaken at late stage in the process, despite the guidelines requiring that they are undertaken at project conception stage. This means that it is often too late to make significant changes. In the case of agricultural projects, EIAs are only undertaken after land has been specifically selected by the government for agricultural investment and added to the land bank, making it unlikely that major changes onhow the land is to be used will eventually be made as a result ofthe EIA.

There is as yet **no strategic environmental and social assessment process in Ethiopia.** The draft guidelines have been under consideration for so long and need to

re-assessed fortheir scope in light of REDD+. A strong SEA process is an essential complement to the EIA process. To this end, a standalone SESA guideline has been finalized to ensure SEA objectives during REDD+ implementation.

Chapter 4. STRATEGIES FOR ADDRESSING THE DRIVERS OF DEFORESTATION AND FOREST DEGRADATION

Strategies for addressing deforestation and forest degradation as well as promoting carbon enhancing activities in Ethiopia arebroadly grouped into two major components:*targeted on-ground interventions* and **creating enabling environment** through tackling underlying causes.

4.1 Targeted On-Ground Interventions

andA total of 17 different strategic options (on-ground interventions)grouped into four major sectoralinterventions wereidentified for implementation.Among these strategic options, some were prioritized following a two-phase screening exercise (Table 3).

The first phase screening is made using three criteria: GHG emission mitigation potential, abatement cost efficiency, and relevance to government development priorities as defined below (CRGE, 2011)

- *GHG emission mitigation potential:* Ranking was based on the CRGE (2011) annual emission removal potential assessment and supported with the findings of the DD research team.
- *Abatement cost efficiency:*The abatement costs refer to the average net emission abatement (mitigation) cost in case of large-scale implementation including societal costs, and
- *The government development priorities:* Government development priorities as indicated in the related strategic documents.

The second phase screening further consideredthe following criteria:
- *Poverty alleviation impact:*Poverty alleviationimpact (increased net economic ben efit) per involved household.
- *Potential social impact at scale:*Potential proportion of households influenced directly by the strategic option adopted, and
- *Institutional readiness:* Institutional readiness reflects the necessary policy and legal frameworks, infrastructure and personnel.

The following four broad on-ground measures in the key REDD+ sectors are considered as targeted interventions needed to address drivers of deforestation and forest degradation in Ethiopia.
- Low-emitting and high yielding agricultural intervention
- Sustainable forest managementand forest restoration (including PFM, ANR, A/R, timber production)

- Energy efficient technologies, biomass and alternative energyInvestment in improved techniques
- Livestock production and management

Besides direct interventions for addressing deforestation and forest degradation, on ground interventions for enhancing forest carbon stocksis part of the NRS as well as the CRGE strategy. The CRGE strategy and the GTP2 has put a plan to enhance forest carbon stocks with a national target of afforesting 2 million ha of land and reforesting an additional 1 million ha of land. Further, Ethiopia pledged for the Bonn Challenge to restore additional 15 million ha of degraded lands. The targeted interventions in the NRS have thus consideredachieving part of this ambitious goal.

The performance indicators for implementation of each prioritized strategic options (targeted physicalinterventions) are based on a set of assumptions and/or quantifications. These include the total area for interventions, number of beneficiary households, investment costs, estimated emission reduction potential of the strategic options, economic and environmental benefits.

Table 3: List of targeted interventions identified to address direct drivers of deforestation and forest degradation

No	Sectors	Strategic investments	Targets* (2030)
1	Forestry	(1) Improve management of natural forests and woodlands through institutional and human capacity building and implementing forest management schemes such as PFM/REDD+ that maintain forest cover: • Strengthen the managementand scaling up of areas under PFM • Enhance livelihoods of communities living in around natural forest through promotion of forest businesses (NTFPs, honey, forest tourism, PES, etc…)	4,000,000 ha
		(2) Increase afforestation, reforestation, and sustainable forest management to increase carbon sequestration in forests and woodlands and expand forest resource base for economic purposes: • Enhance and/ or incentivize appropriate afforestation/ reforestation activities and silvicultural practices by communities and	3,000,000 ha

		private holders on public degraded lands • Enhance the timber supply sources from private and community plantations through the conversion of degraded land to tree plantations to reduce pressure on nature forest utilization. • Promote area closure through the rehabilitation of degraded pastureland, farmland, and degraded highlands leading to enhanced soil fertility and thereby ensuring additional carbon sequestration by mobilizing the public, local communities, NGOs and CBOs and build their capacity • Enhance the capacity of institutions and the public for integrated fire management in fire prone (hot spot) areas	1,500,000 ha 100,000 ha Western lowland forest areas
2	Energy	(1) Reduce demand for fuel wood via the dissemination and usage of fuel-efficient stoves and/or alternative energy technologies for lighting, cooking and baking (such as electric, solar, LPG, or biogas stoves) leading to reduced forest degradation • Support and promote energy efficient cook stoves • Promote biogas units as appropriate • Support and promote alternative and renewable energy sources such as electricity and solar technologies (2) Encourage and/or incentivize communities and private sector to engage in sustainable woody biomass production for charcoal and firewood	3,000,000 HHs 801,464 HHs 1,000,000 HHs 1, 270,000 ha
3	Agriculture	Create new agricultural land in degraded areas through small, medium, and large-scale irrigation to reduce the pressure on forests if expansion of the cultivated area becomes necessary (Yield-increasing techniques	4,373,333ha
		• Irrigated agriculture on new agricultural land from low carbon zones • Mechanization (Small-scale and large-scale farming)	1,857,616 ha

		Intensify agriculture through usage of improved inputs and better residue management resulting in a decreased requirement for additional agricultural land that would primarily be taken from forests (productive but low emitting techniques for Agriculture)	2,515,717ha
		• Soil carbon storage and management • Nitrogen Management • Tillage and residue management • Agro-forestry • Water management techniques	
4	Livestock	• Rangeland and pastoral land management • Improving livestock production system (feed/forage diversification; improved animal breeds) • Enhancing and intensification of animal mix (dairy, poultry, small ruminants, improved breeds) • Live stock value-chain efficiency improvement (processing, marketing,..)	To be worked out in the sectoral action plan

* Data largely drawn from the national study on drivers of deforestation and forest degradation and strategic options to address those, MEFCC 2015.

Relative impact of direct drivers of deforestation and forest degradation (DD) in different regions

Drivers of DD	Agents	Description of drivers	Regional impact (High-H; Medium-M)*
Small-scale expansion	Small-holder farmers	Small-scale farm expansion is wide-spread across regions. However, the level of impact varies with the extent of forests and population.	SNNP**; Oro Am (**H**) Tig; BG (**M**)
Commercial agriculture	Investors/Investment Bureaus	The impact of large-scale commercial agriculture is more severe in regions with relatively high foret resources	Am; Tig; Afa (**M**) Oro; BG; SNNP; Gam; (**H**)
Fuel wood	Fuel wood collectors Refugees Prison Centers Military barracks	There are different agents engaged in fuelwood collection ranging from individual fuelwood collectors to refugee centeres (in specific regions) and or prison ceneres which require huge volume of fuelwood.	Am; SNNP; Oro (**M**) Oro; BG; SNNP; Gam; (**H**) Eth Soma; Gam (**H**) Elsewhere Tig; EthSoma(**M**)
Charcoal	Charcoal producers	Charcoal production should be considered as major driver of DD particularly in some regions	BG; SNNP; Afar; Oro; EthSom (**H**)Tig; Am; Gam (**M**)
Construction/furniture wood	Illegal loggers; Carpenters; wood industries	Although illegal logging is wide spread across regions, the economic activities that drive illegal logging are more common in some regions than others	SNNP; Oro (**H**) Am (**M**)
Free grazing	Pastoralists/farmers		Afa (**H**) SNNP; Oro (**M**)
Forest Fire	Local farmers	Forest fire is more common in BenishangulGumuz and Gambella and to a limited extent in the westrn lowlands of Amhara, Tigray and SNNP.	BG, Gamb (**H**); Amhara; Tigray; SNNP (**M**)
Invasive species		Invasive species (e.g. Prosopis and others) causing encroachment into forest lands	Afar (**H**), Amhara (**M**)
Mining activity	Local miners; Mining Ministry	Traditional & large-scale mining	Oromia (**H**); Tigray; SNNPR (**M**)
Dam construction	Ministry of Water and Electricity	The construction of Dams resulted in clearance of forests	BG (**H**) Oromia (**M**)

* The ranking of drivers as having relatively medium or high impact in a specific region is based on regional level consultations (including communities) on REDD+ strategy

** Regions: Afa - Afar**; Ama -** Amhara**; BG -** Benishangul-Gumuz**; Gam -** Gambella**; Oro -** Oromia**; SNNP -** Southern Nations, Nationalities & Peoples**; Tig -** Tigray

4.2 Measures to Address the Underlying Drivers and Improve Enabling Environment

A summary of strategic actions required to improve REDD+ implementation in Ethiopia is presented in Table 4. These actions are recommended based on the gaps analyzed and the underlying factors of deforestation and forest degradationidentified in thepreceding chapter (Chapter 3).

Table 4. Strategiesto address underlying causes and gaps in enabling environment for REDD+ implementation*mainly driven by MEFCC and jointly implemented by relevant government sectors

Issues/Underlying Causes	Strategies/Measures for Addressing Underlying Causes and Enablers for Improved Forest Management
Weak law enforcement of forest policies and laws	• Strengthen law enforcement activities to combat deforestation and forest degradation through increased capacities of the forestry institutions at various levels and by participating different stakeholders including local communities
Lack of long term finance and human resources to support the effective implementation of forest sector plans, policies and laws	• Enhance the level of knowledge and awareness to the leadership, policy makers, development partners and the public on significance of forestry for sustainable development of Ethiopia for the general public and policy makers • Support the development and consolidation of forest institutional structure down to grass roots levels Mobilize development partners to cooperate in building knowledge and human resources related to forestry, land use and climate change governance and investments
Limited governance and monitoring capacities of institutions in the forest and related NRM sectors	• Identify, demarcate and enhance the management of forest conservation priority areaEnhance the system and technical capacities for data collection, management, processing, consolidation, quality assurance and quality control for the forest and land use sectors
Unclear tenure/ forest user rights (including carbon rights) and absence of clear benefit sharing mechanisms	• Determine in clear legal terms individual, community and state entitlements (rights and duties) over each piece of land in the country with legal consequences; • Promote forest land tenure security through forest land classification/ zoning, demarcation, and registration

	• Promote equitable alternative livelihoods development programs for local community to optimize diversified co-benefits from forest resources and contribute to reduce deforestation and forest degradation.Develop a fair and equitable benefit sharing schemes for distributing benefits from forest management activities
Low levels of stakeholder participation and involvement in the forest sector	• Encourage public engagement, participation, involvement and consultations on forestry and land use planning and implementation (multiple stakeholders including community-based organizations, local communities, indigenous peoples, women, youth, NGOs, and the private sector and academia) • Improve capacities, knowledge and awareness of the relevant stakeholders to implement policy and measures to reduce deforestation and forest degradation
Lack of adequate incentives for private sector to invest in forestry	• Encourage the law making entities to provide for more incentivesthat encourage sustainable timber harvesting by private holders and communitiesPromote effective, equitable sustainable management and use of forests, forestlands and non-timber forest products
Population growth coupled with rural poverty increasing dependence on forest resources	• Promote forest-based and alternative livelihoods Support activities for increased and sustainable agricultural production
Absence of Land Use Planning	• Contribute to consolidation and harmonization of legal frameworks for use of land forest development by supporting the preparation of integrated land use planning initiatives and make it legally binding. • Encourage actors at various levels to developing master land use plans • Encourage the process knowledge generation and policy making for devoting a proportion of the country's territory (jurisdiction) for forestry developmentSupport the immediate demarcation and gazetting of priority forests and wildlife parks in both high forest and dry woodland areas
Overlapping institutional mandates and inappropriate delegation of mandate (e.g., EIA)	• Support the process of clarifying mandates among government institutions and ensuring mandates are provided to the right institutions (make sure that conflict of interest does not exist • Building the capacity of forestry and land use

	sectors at all levels to fully discharge their responsibility of ensuring the implementation of mitigation plans for minimizing the social and environmental impacts on forests and local communities resulting from the implementation development activities (e.g., infrastructure development, agricultural investments, etc)
Inadequate coordination among sectors is another critical underlying cause resulting in mismanagement of land and forest resources	• Strengthen institutions and coordination frameworks to ensure coherent policy responses to reduce deforestation and forest degradation resulting from large-scale economic development and/ or infrastructure projects Improve inter-setoral coordination through creating a high level multi-sectoral coordination platform
	• Establishing strong working ties between vertical and horizontal REDD+ offices and making coordination among these agencies a legal necessity;
	• Mainstreaming REDD+ in each relevant sectoral, government agency; and
	• Creating a coordination platform in a form of a working group that includes the national REDD+ secretariat, regional coordination units and the environmental NGOs and other relevant actors.
	• Support the process of policy harmonization in different sectors (e.g., agricultural investment and forestry)
Inadequate provision on Participatory Forest Management (PFM)	• Encourage for more provisions in the regulation for revised Forest proclamation to incentivizecommunities from PFM activities
	• Recognize legal status for the PFM as an approach for forest management in the country and define and respect community rights
	• Promote effective, equitable sustainable management and use of forests, forestlands and non-timber forest products
	• Encourage Public Private Partnership to get involved in efficient management of state commercial forests (FSR recommendation)
A/R and Restoration challenges	**Strategies/Measures**
Lack of incentives for involving private investments in forestry development	• Enhance and/ or incentivize appropriate afforestation/ reforestation activities by communities and the private sector and silvicultural practices on state land .

Technicalchallenges (species-site matching, post planting management, etc)	• Strengthen the role of academic institutions/research institutions in research, training, and technology development associated with forestry, land use and A/R
Limited (inadequate) technical backstopping from national to lower level actors.	• Improving technical capacity of MEFCC regional and lower level structures • Provide Need-based technical support to actors at different level
Uncontrolled grazing, low sense of ownership of communities, poor follow up after tree planting.	• Strengthen internal bylaws and ensure their effective enforcement • Promotion of area enclosures and explore options for generating incentives for communities • Develop a mechanism for tracking tree planting activities, their outcome and impact
Knowledge gaps in propagation techniques of indigenous trees	• Engage academia and research institution for available prpogation technologies and/or development of improved technologies • Establish a system for extending improved propagation technologies to end users

5.1 Management arrangement for REDD+ Implementation

Ethiopia will follow a partially decentralized approach for its REDD+ institutions and hence responsibilities are vertically divided between national, regional, zonal and woreda levels. Regional level actors will implement REDD+ functions at their jurisdictions. A nested approach willbe implemented with any combination of scales at regional, zonal, woreda or kebele levels (Figure 3b). Guidelines will be formulated to govern the design and implementation of nested REDD+ actions.

The principles for institutional arrangement for REDD+ actions include compliance to the political structure, good governance, decentralization to appropriate levels, inclusiveness, cost effectiveness and accountability in all REDD+ implementation activities. The current REDD+ management arrangement is shown in Figure 3.

Figure 3: REDD+ Readiness institutional arrangement

Three entities have already been formed during Readiness for REDD+ management arrangements at the federal level and recently in four forest potential regional states. The Federal REDD+ Steering Committee (RSC), chaired by MEFCC, is made up of high level representatives, higher officials from regional governments and state ministers of relevant sectoral ministries. Its main functions are an advisory and guiding role, and creating linkages and coordination on REDD issues and activities to senior government agencies.

The Federal REDD Technical Working Group (RTWG) is made up of active practitioners in the REDD+ field, with representation from research, academia, governments of key REDD+ sectors, NGOs and development partners. The RTWG wereorganized into three task-specific task forces namely REDD+ MRV/RL, REDD+ Strategy and SESA/ESMF task forces. These task forces have been actively engaged in providing technical backstopping and quality assurance in the development of different readiness technical assessment reports, documents including safeguarding instruments, FRL/MRV and the REDD+ strategyin the national REDD+ design. The National REDD+ Secretariat with a national coordinator and key technical& administrative staff is established at MEFCC directly accountable to the state minister of the forest sector. The Secretariat has been routinely coordinating the readiness activities supported by the RSC and RTWG. The Secretariat is responsible for the design and implementation of an effective and functional national REDD+ program.

MEFCC decided that the National REDD+ Secretariat will continue coordinating the REDD+ implementation during which it will ensure the mobilization of investment funds, coordinate the implementation of enabling activities, supervising and technical backstopping for physical REDD+ implementation, periodic execution of forest assessment in collaboration with the MRV unit at MEFFCC and the maintenance and operations of national forest information system along with the dissemination of information through appropriate channels.

At Regional level, similar arrangements as in the federal level were put in place in four regional states (Oromia, Amhara, Tigary and SNNP)to ensure an effective and devolved REDD+ implementation arrangement consistent with the national level organization. These regional level bodies are: Regional REDD Steering Committees (RRSC), Regional REDD Technical Working Groups (RRTWG) and Regional REDD+ Coordination Units (RRCUs). The other regional states namely Benishangul-Gumuz, Gambella, Ethiopia-Somali, Afar, and Harari,are currently represented by REDD+ Focal Persons and similar REDD+ entities will be instituted gradually.   (). The Regional REDD+ Coordination Units the regional counterpart of the National REDD+ Secretariat will largely be responsible in coordinating implementing actors at regional level and monitoring the implementation activities (including safeguards and MRV activities within

its jurisdiction) by lower level implementing units (e.g. Woreda REDD+ Implementation Units-WRIUs).

The regional level REDD+ management entities are constituted in more or less the same way as in the federal arrangement while taking into account regional circumstances. The overall implementation arrangement at the regional level is expected to provide a coordination platform in bringing together all relevant actors together and ensure their full participation in the planning, execution and monitoring of REDD+ implementation activities within the regional jurisdiction. Wherever appropriate, similar Zonal level coordination mechanisms will be put in place.

Lower level REDD+ institutions are being developed, and will be part of Regional REDD+ implementation arrangement. Wereda level REDD+ implementation units will serve as a coordination platform where relevant REDD+ actors will fully coordinate in implementing REDD+ activities across sectors and across spatial scales within each region. For this, while aWereda REDD+ Steering committee, chaired by the Woreda Administration willoversee andregularly monitor the implementation of REDD+ activities at wereda and local level and Wereda REDD+ Implementing Unit composed of major implementing actors at Wereda level (e.g. agriculture, livestock, forestry, land use etc...) will be responsible for day to day implementation of REDD+ activities. A Woreda REDD+ coordinator will be responsible for coordination of REDD+ implementation in the short term, and this task will be taken over by the government eventually following the management arrangement described above. In making the management arrangement at Wereda (local) level more efficient and cost-effective, existing structures for other developmental projects (e.g., SLMP Woreda Team) can be used (if available) in the management and coordination of REDD+ activities. The REDD+ institutional arrangement envisaged during the REDD+ implementation is shown in Figure 4.

Ministry of Environment, Forest & Climate Change

Federal REDD+ Steering Committee (MEFCC Chair, MoFEC Co-Chair; National Planning Commission)

Federal Level

REDD+ Secretariat

Federal REDD+ TWG

Regional REDD+ TWG

Office of the Regional President/ Vice President RRCU will be housed in the Regional Admin Office

Regional REDD+ Steering Committee

Regional Level

Regional REDD+ CoordinationUnit

Zonal REDD+ Focal person (Environment & Forestry office) coordinating line departments and housed in the zonal admin office

Zone level

*Wereda*REDD+ Steering Committee

*Wereda*Environment & Forestry office performs/coordinates implementation

Wereda REDD+ Technical WorkingGroup

*Kebele*Administration

***Kebele* Level**
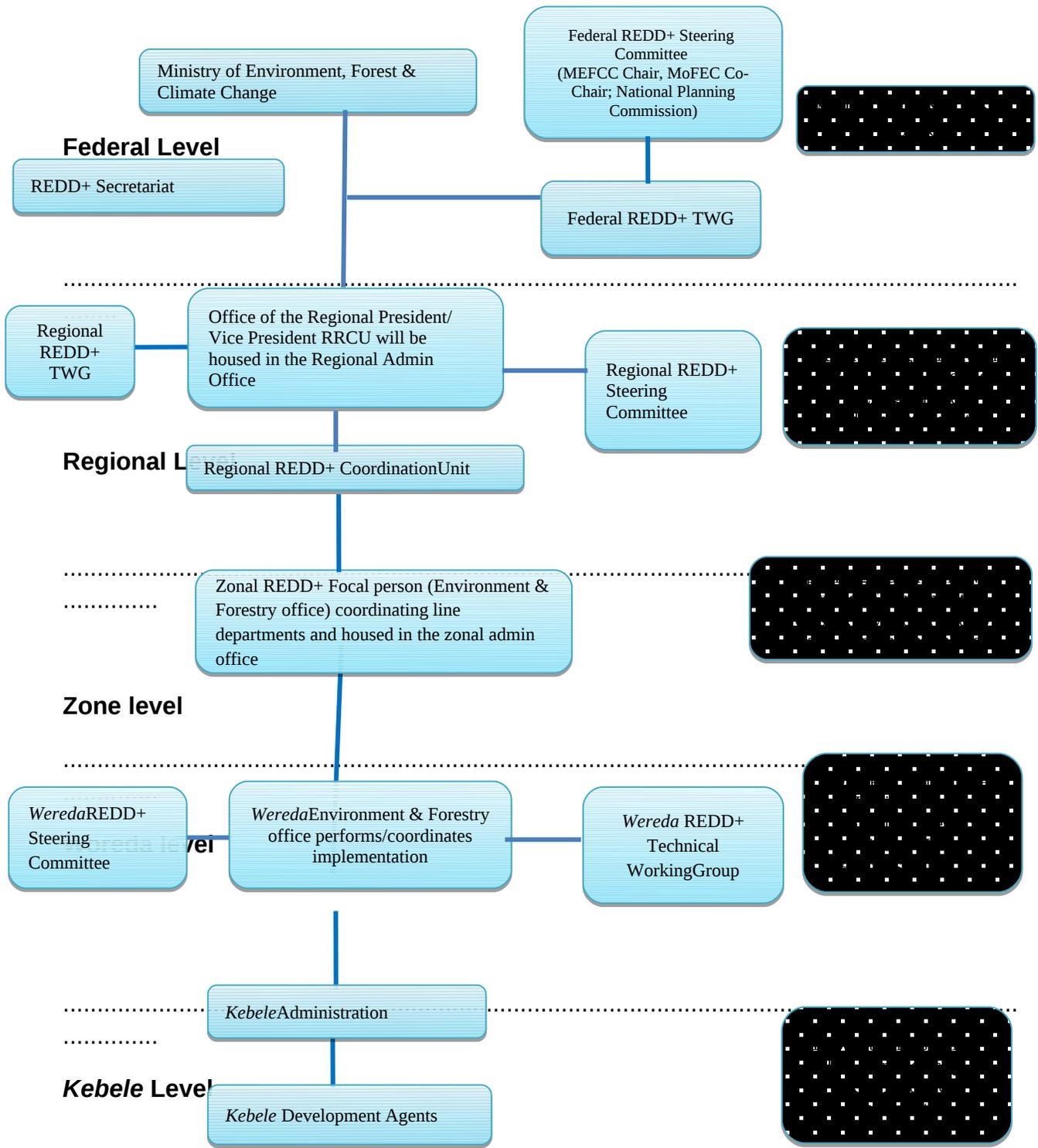
Kebele Development Agents

Figure 4: Institutional arrangement for National REDD+ activity implementation

5.2 Fund Management arrangement

As in the management arrangement for physical implementation described above, functions with regard to financial management will be decentralized. At federal level, management units (e.g. Ministry of Finance & Economic Cooperation, MoFEC and MEFCC) will be responsible for managing funds for REDD+ g upfront funding) from international and other sources. These functions include channeling funds to lower level management units and monitor and ensure that the fund utilization is compliant to nationally and internationally agreed-upon financial, fiduciary and reporting procedures. The regional REDD+ management counterparts, on the other hand, will be responsible in managing the REDD+ finance allocated for regional REDD+ implementation activities and monitor the implementation process and ensures its compliance with nationally agreed financial and fiduciary procedures. The fund management structure for results based payments (RBPs) will be defined during the preparation of the national benefit sharing framework. The national framework for benefit sharing mechanism will guide the principle of benefit sharing including institutional arrangements. While the institutional arrangement for benefit sharing mechanisms will largely rely on the arrangement for REDD+ implementation, region-specific institutional frameworks that will be worked out yet. The institutional arrangement will involve relevant institutions (including community based organizations, CBOs) and ensure transparency and smooth distribution of benefits. Lessons from OFLP andHumbo CDM project will be taken seriously during the preparation of the national benefit sharing framework and related RBPs fund flows.

5.3 Institutional arrangement for REDD+ safeguards

Ethiopia is committed to developing and enforcing REDD+ social and environmental safeguards during implementation of this strategy. Safeguards can be broadly understood as policies and measures in order to mitigate both direct and indirect impacts of REDD+ actions on communities and ecosystems. A REDD+ safeguard system in the context of this Strategy is meant to include a review of REDD+ activities against environmental, social and governance screening criteria; a re-design of activities to address risks and maximize benefits; monitoring of and reporting on overall compliance against a list of agreed standards; and verification of the results.

The development of Strategic Environmental and Social Assessment (SESA) is informed by an analysis of Ethiopia's existing safeguard policies and regulations along with relevant World Bank safeguards policies in a manner that confirms the execution of REDD+ activities are in accordance with UNFCCC (Cancun elements) guidelines. As the FCPF is a World Bank initiative, countries participating in the FCPF like Ethiopia must complete a Strategic Environmental and Social Assessment to ensure coherence with the relevant World Bank safeguards operational policies. Ethiopia has now completed the development of four safeguard instruments to reduce the potential environmental and social risks and enhance the benefits of REDD+ implementation. These instruments include Strategic Environmental and Social Assessment (SESA), Environmental and Social Management Framework (ESMF), Resettlement Policy Framework (RPF) and Process Framework (PF). These safeguard documents will provide clear directions for managing and mitigating the environmental and social risks and impacts of future investments (projects, activities, and/or policies and regulations) associated with the implementation of the country's REDD+ strategy.

The SESA work facilitates the incorporation of environmental management and socio-economic decisions at the earliest stages of planning activities and investments. It will also provide avenues for the involvement of the public, communities/landowners, proponents, private interest groups and government offices in the assessment and review of any proposed interventions. In accordance with UNFCCC and the World Bank guidelines, special consideration is given to livelihoods, rights, cultural heritage, gender, underserved and vulnerable groups, governance, capacity building and biodiversity.

ESMF supports an assessment of the risks and potential impacts connected with one or more projects or activities that may occur in the future. The Framework sets out the principles, guidelines, and procedures to assess environmental and social risks, and proposes measures to reduce, mitigate, and/or offset potential adverse environmental and social impacts and enhance environmental and social development benefits of REDD+ actions, policies and /or regulations. The development of SESA/ESMF ensured multi-stakeholder consultation and participation in compliant to World Bank safeguard policies and the Cancun Accord..

The RPF is an instrument used to compensate or replace lost assets, livelihood, and income; and assistance for relocation, including provision of relocation sites with appropriate facilities and services. Moreover it helps restoration of livelihood to achieve at least the same level of well-being with the Project as without it. The Process Framework (PF) establishes a process by which members of potentially affected communities can participate in planning of project components, determination of measures necessary to achieve the policy objectives, and implementation and monitoring of relevant project activities. It covers restrictions of access and use to

legally designated forest conservation areas, which result in adverse impacts on livelihoods of the affected people.

The four safeguard instruments have identified the risks and benefits in detail and proposed mitigation measures associated with implementation of REDD+ strategic options. The responsibility of oversight, managing, implementing, monitoring and reporting on safeguards will be shared among MEFCC and decentralized administrative levels.

An important component of the national REDD+ safeguards system is the safeguard information system (SIS[15]) which is a key requirement for REDD+ under the United Nations Framework Convention on Climate Change (UNFCCC). In this regard, Ethiopia drafted a framework for "… providing information on how the Cancun safeguards are being addressed and respected throughout the implementation of REDD+ activities". Aweb-based platform for the flow of safeguard information by different actors and at different levels will soon be developed.

The potential benefits, risks and there mitigation measures are presented in the four safeguard instruments in Annex 4.Details on recommended REDD+ institutional arrangements and their roles and **responsibilities is** shown as in Table 5(based on the work of national legal and institutional analysis for REDD+ implementation).

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[15]Ethiopia REDD+ Safeguard Information System, Version 1.1, November 2017

Table 5.REDD+ Institutional arrangement (Agencies, Functions and levels)

REDD+ Functions	Federal (National) Level	Sub-national Level
Provide overall management and oversight of the process	» Ensures vertical and horizontal coordination of strategy development, implementation, decision-making and planning ; - **FRSC** » Promote collaboration and cooperation among different sectors and stakeholders - **FRSC** » Harmonize REDD+ related policies and programs - **FRSC** » Helping to create operational environment for smooth implementation of REDD+ strategy - **FRSC** » Oversee the implementation and review of REDD+ strategy and policies; - **NRS** » Review and approve REDD+ plans and programs of Regions - **MEFCC** » Engage in REDD+ international relationships and partnerships.-**MEFCC** »Provides overall coordination and facilitation of REDD+ institutions and technical backstopping - **NRS** » Coordinate regional demonstration activities - **NRS** » Guides and ensures the full	» Oversees that the sub-national programs meet objectives and requirements set out in the Federal REDD+ Strategy - **RRSC** ➤ Ensures vertical and horizontal coordination of RRCU planning, implementation, decision-making between implementing institutions - **RRSC** ➤ Ensures high-level political oversight and executive power - **RRSC** ➤ Review performance of REDD+ institutions and relevant stakeholders in fulfilling their roles and responsibilities - **RRSC** » Provides conflict resolution between stakeholders at regional level - **RRSC** » Promote collaboration and cooperation among different sectors and stakeholders at sub-national level- **RRSC** » Harmonize REDD+ related implementation activities - **RRSC** » Helping to create operational environment for smooth implementation of REDD+ strategy - **RRSC** Elaborates REDD+ plans, programs and projects; - **RRCU** » Oversees implementation and MRV of REDD+ plans, programs and projects; - **RRSC** » Reports to the National REDD+ Secretariat; - **RRCU** » Coordinates the implementation of strategies at Wereda&Kebele levels - **RRCU** » Guides and ensures the full participation of women and local communities in REDD+ process - RRCU » Oversee and coordinates planning and implementation of

	participation of women and local communities in REDD+ process - **NRS** » Ensure effective efficient and transparent governance of M & MRV and Management of data under MRV system - **NRS** » Monitors and oversees the implementation of centralized operational functions (e.g. MRV, safeguards), including at sub-national level - **NRS**	REDD+ activities and REDD+ relevant activities at Wereda level - **WRSC** » Ensure cross-sectoral policy coordination at wereda level - **WRSC** » Coordinates implementation of REDD+ activities and REDD+ relevant activities among local implementers (e.g user group, cooperative unions, PFM institutions) at Kebele level - **KEC** » Provide conflict resolution at Kebele level - **KEC**
Manage REDD+ finance	» Channel and monitor funding for REDD+ from international and national sources; - **MoFEC/REDD+ Window** » Manage funding for REDD+ from international and national sources; - **MEFCC** » Allocate and disburse resources according to agreed rules and procedures ; - **MEFCC** » Ensure compliance with nationally and internationally agreed-upon financial, fiduciary and reporting procedures; - **NRS** » Establish and manage relationships with REDD+ carbon market. - **MEFCC**	» Manage finance allocated for the regional REDD+ Implementation; - **RRCU** » Disburses and monitors resources to approved REDD+ plans, programs and projects; - **RRCU** » Ensures compliance with nationally agreed-upon financial, fiduciary and reporting procedures-**RRCU**
Provide technical guidance and support for REDD+	» Put in place national standards for REDD+ (e.g. MRV and for social and environmental safeguards) - **MRV Unit/REDD Sec**.	» Applies national standards for REDD+ metrics, MRV, and social and environmental safeguards;-**RRTWG/RRCU** » Assists in regular forest assessments and MRV activities ; - **Regional implementing Bureau/RRCU**

	» Guides and monitors regular forest assessments and MRV activities - **MRV Unit** » Review and monitor national REDD+ Program implementation - **FRTWG** » Review and approve forest assessment and MRV results; - **MEFCC** » **Provide technical guidance for proper implementation of safeguard instruments** - **NRS/SESA TF** » Manage relationships with international REDD+ technical bodies; - **NRS** » Provide technical assistance to REDD+ parties. - **NRS** » Provide multi-stakeholder support and advice, including legal, institutional and technical aspects of REDD+ - **FRTWG/TFs** » Drafts policy and operational documents - **FRTWG/TFs** » Supervise and provides all technical/technological support, builds capacity and logistics support to with regards to MRV to sub-national actors (e.g.RRCUs) - **MRV Unit/NRS**	» Provides technical assistance to programs and projects. **RRTWG/RRCU** » Provides technical support to WRIU on forest resource assessment, monitoring and reporting requirements **- RRCU** » Review and monitor national REDD+ Program implementation - **FRTWG** » Facilitates the work of Wereda RSC and Kebele executive Committee **WRIU** » Facilitates decentralized coordination of implementing institutions - **WRIU**
Implement REDD+ activities	» Implements national enabling & readiness activities and coordinates demonstration activities; - **NRS** » Supervise and coach REDD+ implementation - **NRS**	» Prepares and implements REDD+ projects in accordance with REDD+ national strategies and policies, MRV standards, and social and environmental safeguards;-**RRCU/Regional Implementing Bureaus/wereda offices** » Planning, budgeting, procurement, reporting, monitoring and

» Periodic execution of forest assessment for deforestation and degradation monitoring - **MRV Unit/NRS** » Design, maintenance and operation of national forest information management system and dissemination through web portal **- MRV Unit/NRS**	evaluation - **RRCU** » Provide reports to the REDD+ Secretariat (e.g. for MRV, M & E, Safeguards) - **RRCU** » Implements REDD+ safeguard instruments at wereda level - **WRIU** » Provide conflict resolution at wereda level **WRIU** » Guides and ensures the full participation of women and local communities in REDD+ process - **WRIU** » Conducts forest resource assessment activities in coordination with relevant institutions - **WRIU** » Facilitate Implementation of REDD+ activities at Kebele level (e.g safeguard, PFM) - **KDAs** » Ensure the participation and full engagement of women in REDD+ process - **KDAs** » Leads forest assessment, monitoring and MRV across sub-national level - **RRCU** » Establish appropriate forest resource assessment in line with the guideline at the Federal level - **RRCU** » Check all data and results in order to confirm that these are in accordance to the standards defined in the national MRV modalities - **RRCU** » Reports all the data to the national MRV unit **- RRCU** » Calculate sub-national level program GHG emissions and Emissions reductions including associated uncertainties - **RRCU**

		» Submit data to the national MRV Unit for quality check - **RRCU**
Track, register and certify REDD+ actions and/or outcomes	» Put in place and oversee the national REDD+ MRV and Certification standards &procedures; - **NRS** » Registers & Certify MRV REDD+ results; - **Third party (Tbi)** » Facilitate REDD+ payments and distribution of Certified Emission Reductions among REDD+ project participants; - **MEFCC** » Manage relationships with international registry and certification bodies. - **NRS/MEFCC**	» Ensures that sub-national programs and projects comply with national REDD+ MRV and certification standards and procedures;-**RRCU/RRTWG/Wereda Regional EPB** » Submits results to national authorities for approval, registry and certification. - **RRCU** » Submit data and report activities related to MRV and other REDD+ related activities to RRCU–**WRIU**
Ensure REDD+ safeguarding and accountability	» Put in place and oversee the operation of participatory and consultation mechanisms and of social and environmental safeguards; - **NRS/RTWG** » Put in place and oversee operation of grievance and redress mechanism; - **NRS/MEFCC** » Manage relationships with international safeguards and accountability bodies; - **NRS/MEFCC** » Put in place a safeguard information system (SIS) that ensures the flow of information of REDD+ safeguard implementation- **NRS/SESA TF** » Ensure the preparation of summary information on proper implementation of REDD+ safeguards and reporting to	» Ensures that sub-national programs and projects complywith national participatory and consultation proceduresand national social and environmental safeguards; in collaboration with relevant sectoral bureaus as needed (e.g. ESIA) - **RRCU/RRTWG** » Ensure the implementation of grievance redress mechanism or refer parties to the national level as required - **RRCU**. » Manage the compilation and reporting of information on REDD+ safeguards implementation at sub-national level.**Regional MEFCC Bureaus/RRCU**

	UNFCCC - **MEFCC/NRS**	
Capacity building	» Provide or facilitate capacity building to national & regional REDD+ staff; - **NRS** » Provide or facilitate capacity building for all major national level REDD+ stakeholders - **NRS**	» Provides/organizes training and capacity building to technical staff of REDD+ stakeholders, (in collaboration with REDD+ secretariat as needed); - **RRCU** » Provides capacity building and facilitation to ensure proper participation of local communities –**RRCU**

5.4 Stakeholder Consultation, Participation and Coordination

Stakeholder engagement is crucial for the sustainability of policy, strategy, program and project design and implementation. It also helps to build local understanding and ownership. As identified by the UNFCCC, the threepillars for REDD+ stakeholder engagement are

- Full and effective participation of relevant stakeholders (in particular underserved peoples and local communities) in REDD+ actions;
- Respect for the knowledge and rights of underserved people and members of the local community;
- Recognizing the importance of transparent and effective national forest governance structures and enhancing social and environmental benefits.

Hence, the government of Ethiopia strongly believes the non-applicability of any development, including the REDD+ process, without active engagement of stakeholders. The identification of stakeholders considered

- Those who are directly or indirectly affected by REDD+ implementation process, and/or those who will be directly or indirectly affected by the enforcement of institutional, policy and legal framework to be developed in REDD+ process,
- Capture the important concerns and interests of the key stakeholders in the REDD+ implementation process.

Accordingly, consultation sessions have been carried out during the development of different REDD+ related technical studies mentioned earlier. Further consultations will be conducted based on the Consultation and Participation (C&P) Plan taking into consideration national, regional, wereda and kebele administrative structures. The overall process will be coordinated by the national REDD+ secretariat. The national SESA task force will be responsible for handling C & P process for stakeholders at federal level, while the C & P process at sub-national (regional, wereda and kebele) level will be the responsibility of the respective REDD+ management units.

Agenda for consultation will be based on identified C & P issues that takes into consideration the level at which the C & P process is taking place to make it relevant to the stakeholders concerned. The issues for consultation will be delivered effectively and timely at each administrative level and to the respective stakeholders using appropriate methods (as identified by the Communication Strategy) and using accessible languages and style. In ensuring multi-stakeholder representation and participation, a comprehensive stakeholder mapping will be undertaken so as make the process inclusive. On top of that, a stakeholder dialogue platform will be used to improve

information sharing and consensus building and in making participatory decision making process possible.

While ensuring multi-stakeholder representation, the process will take into account the achievement of high level of participation with particular emphasis to gender and underserved groups of the communities. Moreover, the consultation and participation process will be continuously monitored and evaluated.
A mechanism for coordination and cooperation among relevant stakeholders will be established at different levels. These includes specifying and overseeing roles, responsibilities and monitoring activities.

A stakeholder database, as a component of SIS, with a user-friendly information system will be designed to store all data from consultations in an accessible manner. The database system will allow the rapid and efficient recording and classification of comments so that they can be processed and transformed into usable information.

5.5 Overview of the Principles for Preparing Benefit Sharing Mechanism

The implementation of REDD+ programs in Ethiopia should deliver real and meaningful benefits that are economically sustainable, and shifting towards low-carbon practices in the country. In order to achieve the objective of REDD+, multiple of benefits including monetary and non-monetary incentives will be tailored to meet the needs of different stakeholders and thereby addressing drivers of deforestation and forest degradation at multiple levels.Benefit sharing mechanism in the context of Ethiopia's REDD+ program will focus on the *distribution and investment of results-based finance* that Ethiopia receives from the valuation of an environmental service, i.e., reduced emissions from REDD+ activities. In fact the *distribution of benefits* (monetary and non-monetary) created by the various policies and measures and the *co-benefits* (indirect benefits) including Environmental (biodiversity protection, water conservation), social (capacity building for local institutions) or economic (enhanced livelihood opportunities) should be implicit in the design of the REDD+ program and the benefit sharing mechanism. The benefit sharing arrangement will be transparent and seeks nation-wide participation of all relevant stakeholders, with a focus on local communities, women and underserved (marginalized) communities, and rural households in general.

The benefit sharing mechanism for Ethiopia's REDD+ program will be based on the principle of *equity* (fair distribution of costs and benefits including procedural aspects of participatory decision-making), *effectiveness* (benefits should act as an incentive) and *efficiency* (benefit sharing in terms of costs). There is a general agreement that benefit sharing should promote non-carbon benefits for local communities such as increased

income from new land-use practices, natural resource-based small enterprises development, improved yields and more secure ecosystem services. Sufficient livelihood incentives for local communities will be essential for the success of REDD+ in Ethiopia, as is highlighted by the experiences with PFM.

The following overarching principles will underpin the benefit sharing mechanism:

- Building the benefit sharing mechanism on the basis of accountable and transparent local governmental arrangements responsible for the implementation and management of REDD+ activities with the necessary skills in reaching out to local farmers.
- Encouraging decentralized decision making through active involvement of all relevant actors in transparent discussions and ensure wide support among community members.
- Utilizing REDD+ funds to promote economically viable development activities at community level (e.g. schemes that generate income sustainably and enhance the forest potential and poor peoples' livelihoods);
- Taking into account the needs of underserved (marginalized) groups and gender aspects.
- Ensuring that the benefit sharing practices are established on stable, fair, clear and coherent policies and legal frameworks that govern rights, responsibilities, distribution of benefits, and provide an appropriate mechanism for addressing grievances etc.
- The National or sub-national REDD+ benefit sharing mechanism that will be developed for proper implementation of REDD+ will take into consideration the following fundamental elements:
- Eligibility criteria to participate in REDD+ actions will be developed in consultation with stakeholders and also considering the legal provisions of the country. Experiences from Participatory Forest Management PFM initiatives will be taken up.

- A range of benefits may include financial or non-financial and can be delivered as upfront programmatic investments or as ex-post payments for performance.Indirect benefits such as legal rights (e.g. use, access) to resources will also be considered.The mechanism should also consider augmenting financial benefits with technical assistance.In addition, the scheme should create options for the future through enabling communities to benefit from other forest based initiatives.

- The development of a benefit sharing mechanism will consider managingcommunity expectations

- Criteria for sharing benefits should be based on performance of each CBO.The timing for channelling benefits should be suited to local conditions and needs.

- Institutional setting for benefit flow and management will be developed and specific institutions and their role will be further elaborated.

- Setting up of a separate window for REDD+ financial management (upfront as well as incentive money) and establishment of transparent and efficient system for disbursement of finance based on agreed share. At the grassroots level, financial benefits will be channelled to CBOs (not individuals).

- CBOs will develop bylawspertaining to internal procedures for sharing of financial revenue between individual members of CBOs considering specific aspects.

- Benefit distribution scheme will be revised as necessary taking into account new developments.
- Putting in place an M & E system to track benefit flow and to measure the impact of benefits and the system for verifying performance reports by an independent entity.

5.6 Sustainable financing options

Achieving zero net emissions (or more removal) from deforestation and forest degradation and furthermore, capturing emissions from other sectors through sustainable forest and land management can only be possible with a significant and immediate scaling up of investments. Ethiopia should design mechanisms to effectively access existing sources of multilateral, bilateral and domestic financing for REDD+ investment. While international financing is very essential, it is equally important to explore in-country funding for REDD+ including from public and private sources. The general direction in REDD+ financing considers the following aspects.

- Exploring options for the establishment of domestic financing mechanism such as from public sources, public-private partnerships, etc. aiming at funding a greater share of projects with in-country capacity.
- Active involvement in international climate negotiations to shape as well as access international, bilateral and market based finance.
- Discussions with development partners, through a regular donor coordination platform (to be established), for putting in place sustainable finance by way of a combination of performance based upfront funding as well as ER based ex-post payments.
- Ensure the engagement of the private sector (public-private partnerships) through the formulation of necessary incentive mechanisms.

- Explore other Payment for Environmental Services (PES) opportunities such as water, bio-prospecting, etc. in addition to carbon finance initiatives.

Chapter 6. CARBON ACCOUNTING FRAMEWORK

6.1 National Forest Monitoring System (NFMS)

The overall carbon accounting framework for forestcarbon and the National Forest Monitoring System (NFMS) arekey source of information for forest monitoring, setting the FRL (baseline) and monitoring, reporting and verification (MRV) of emission reductions from sources and carbon removals from sinks as well as the safeguards information system.
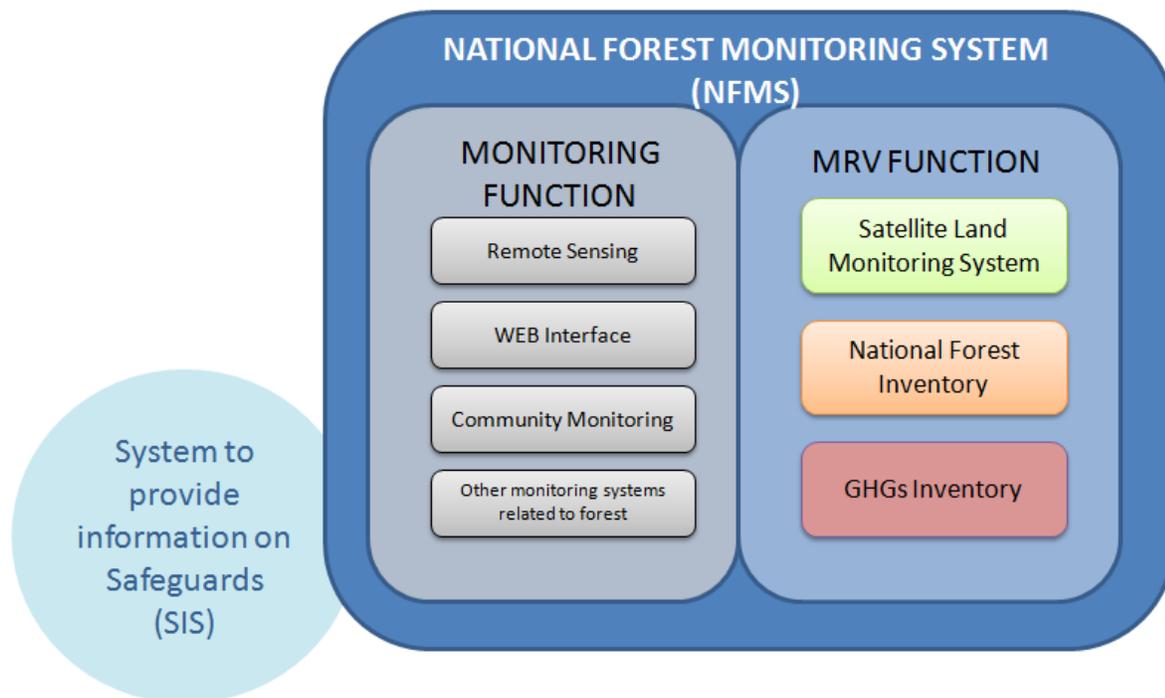

Figure 5: Functions of the National Forest Monitoring System

Ethiopia's NFMS is designed to provide information relevant to MRV REDD+ activities and to support broader forest sector policies and program. Ethiopia's NFMS consists of two functions (Figure 5) – MRV and Monitoring functions. The MRV function is for

reporting GHG inventories and may be divided into three elements: Measurement, Reporting and Verification. The measurement part consists of GHG Inventories, the Satellite Land Monitoring System (SLMS) and the National Forest Inventory (NFI).

Verification will be a two-step process. The first step requires external monitoring and verification by the national MRV technical team chosen based on competence of national experts that will be submitted to the government for official endorsement. The second requires international verification by the UNFCCC or a partner engaged in the REDD+ RBPs with government of Ethiopia.

Monitoring refers to both the monitoring of REDD+ PAM impacts in addressing drivers of deforestation and forest degradation or in enhancing carbon removal through forest restoration. It also involves the collection, storage, analysis, and dissemination of data. SLMS also assumes an important role in the monitoring function by providing frequent information on land use/cover conditions. The types of information to be collected by the NFMS – particularly through its monitoring function - are determined along with the development of the SIS particularly on non-carbon benefits.

Within the REDD+ framework, the methodology for monitoring PAMs will be determined based on PAMs to be implemented, but Ethiopia is interested at the moment to monitor deforestation and afforestation.

Satellite Land Monitoring System (SLMS)
Ethiopia has mapped the extent and distribution of forest areas based on satellite images. Historical rates of deforestation and afforestation have been calculated for the period between 2000 and 2013. The database management system has been developed at the National MRV Unit to store, analyze and manage data and information required for the NFMS and to ensure that relevant stakeholders have access to data and information associated with REDD+. A web-portal is being designed and servers are being configured, to allow for transparent sharing of NFMS-related data. The MRV Unit at EFCC with TA from FAO as been producing National Forest Cover map using Landsat images for 2013. A Land Use Land Cover map for the year 2013 has also been completed. While technologies for an improved monitoring will be sought (especially for forest degradation), Landsat images (satellite image) will continue to be used as the basis for land use/cover mapping because of their cost-effectiveness and utility for land use change detection.

National Forest Inventory (NFI)
National Forest Inventory has also been conducted since March 2013 and data collection has been finalized by now. Tree biomass data from the NFI were analyzed and emission factors (EFs) were determined four biomes (Figure 5).The information

generated by the NFI was used in the calculation of the initial FREL/FRL submitted to UNFCCC in this year

Greenhouse Gas Inventory

GHG inventory for the forest sector uses ADs for deforestation (annual forest loss) and afforestation (annual forest gain) calculated. ADs by Land sat image analysis is updated biannually and EF is calculated from the NFI andupdated every 5 years. Harmonization of methodologies for other AFOLU sectors and REDD+ MRV and the method to be used in the BUR and National Communication (NC) have yet to be developed.

6.2Setting the Forest Reference Levels (FRLs)

Ethiopia's FRL is developed in the context of receiving results based payments for REDD+ implementation. Based on the approach described above for the construction of FRL, Ethiopia has submitted its first FRL to the UNFCCC where the Forest Reference Emission Level for deforestation is: 17.9MtCO2/year /year; the Forest Reference Level for afforestation is: 4.8 MtCO2/year (see Figure 6). The choice of construction approach and historical period is provisional and may change in the future following appropriate and comprehensive assessment and national circumstances. In this revised version of the FRL, the estimates have been improved by estimating the emission factors using countrywide data from the National Forest Inventory and taking into account the revision of the first submission (Figure 5)
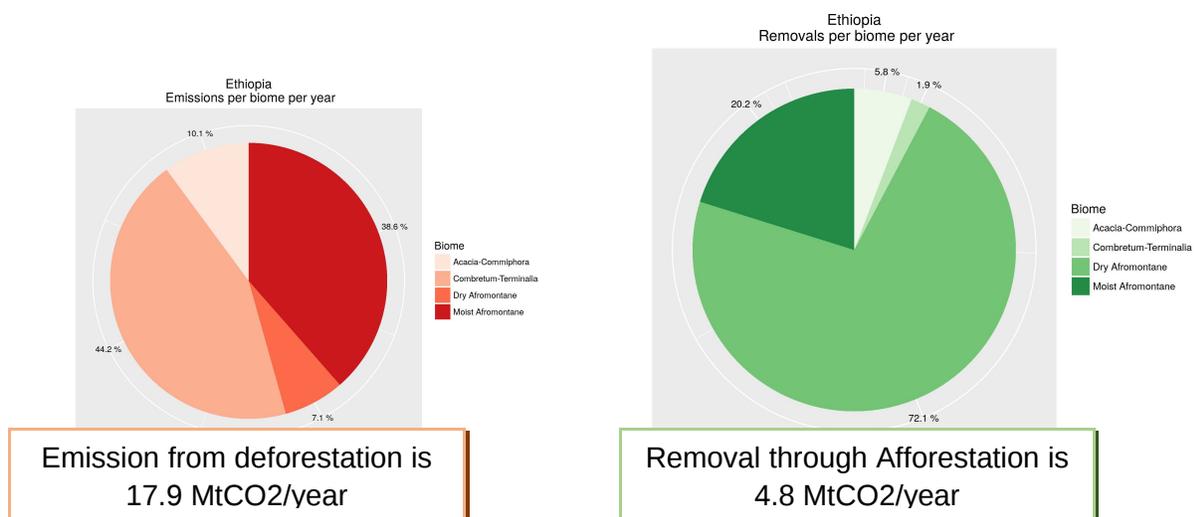

Figure 6. Annual carbon emissions (MtCO$_2$e, A) and removal (MtCO$_2$e, B) and percentages by forest types (biomes) in Ethiopia between 2000-2013.

Ethiopia has made decisions on key elements of the national FRL. Consistent with the construction of the national FRL, the Oromia Forest Landscape Program (a sub-national Jurisdictional REDD+ program) has a separate FRL intended to generate payments for emission reduction from the BioCarbon Fund.

The key elements of the national FRL are defined as follows:

(i)**National Forest Definition**: Forest in Ethiopian context refers to: *'Land spanning more than 0.5 ha covered by trees (including bamboo) attaining a height of more than 2m and a canopy cover of more than 20% or trees with the potential to reach these thresholds in situ in due course*'.The height threshold has been reduced from the original 5m (previous submission to the UNFCCC for CDM-AR) to 2m with the intention including dense woodlands that have a wide distribution with significant carbon stock across dry lands of the country. Canopy cover has been increased from 10% to 20% with the intention of excluding highly degraded forest from the forest definition and provide incentive for protecting forest.

(ii)**Scale**: The construction of FRLs begins at national level and the submission to the UNFCCC will be the national FRL. Sub-national FRLs will emanate from the national FRL for reasons of consistency. The national FRL construction will follow a step-wise approach. In the interim period, the construction of FRL will be based on national activity data and sub-national emission factor from the national inventory data which will subsequently updated based on data from national emission factors.

(iii)**Scope**: Ethiopia is proposing a step-wise approach for the inclusion of the following REDD+ activities: i) reducing emissions from deforestation, ii) reducing emissions from forest degradation, and iii) enhancement of forest carbon stocks (A/R). In the interim period, with regard to activities Ethiopia decided to submit baselines for emissions from deforestation and carbon removals from forest restoration (A/R). In relation to carbon pools, AGB, BGB and dead wood carbon will be considered. Among GHGs, only CO_2 will be measured and reported.

(iv)**Analysis of historical data**:

Activity Data (AD): The reference period for the calculation of forest cover change (AD) spans 13 years (2000-2013). In the national forest monitoring system (NFMS), Landsat8 data sets will be used both for mapping forest cover and forest cover change (AD). At least 4 time series images to calculate the historical annual average or trend. The end date for the historical analysis is the most recent date prior to 2013 for which forest cover data is available. Cursory analysis of deforestation in Ethiopia shows an increasing trend, however, an initial submission considers historical average which will gradually be updated based on availability of data.

Emission Factors (EF): Emission factors will be determined for four forest categories (biomes) of the country based on the current forest inventory data. The calculation of biomass currentlyuses Chave et al. 2014 allometric equations recommended by the IPCC . However, a national project for validation of equations is planned to be undertaken. This results in updated EFs in subsequent submissions of FRLs. The uncertainties related to emission factors are quantified.

Stratification: Four forest categories (biomes) will be used for calculation of emissions and carbon removals Figure 7). These forest categories include Moist Afromontane Forest, Dry Afromontane Forest, *Combretum-Terminalia*dryforest and *Acacia-Commiphora* dry forest.Similar emission factor will be used for the identified forest categories in calculating emission removals (Figure 6).
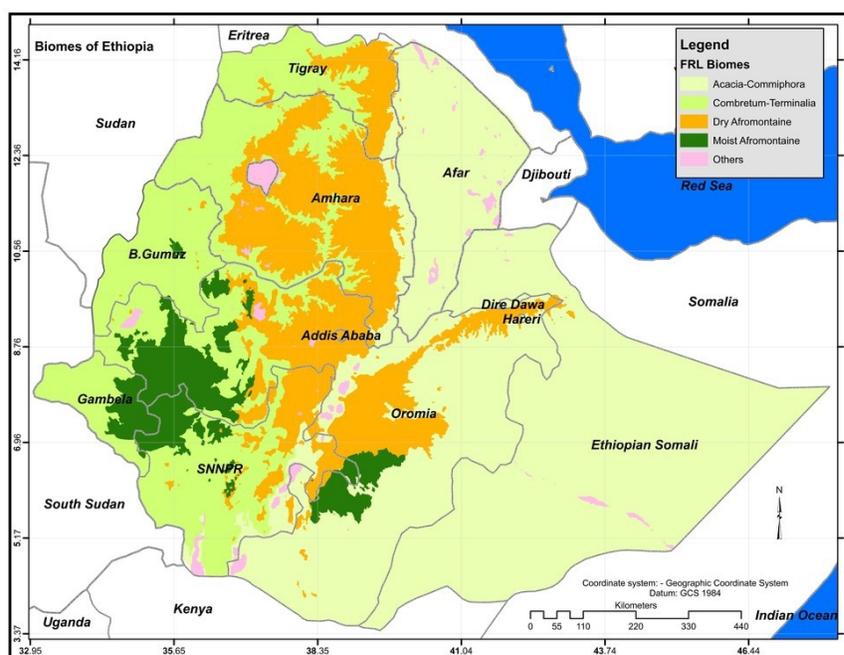
Figure 7: Major forest biomes of Ethiopia

6.3 MRV Structure, Institutions and Responsibilities

Institutional arrangements for monitoring systems should ensure the smooth flow of information among institutions and the participation of stakeholders. In conformity with the institutional arrangement forREDD+ implementation, an appropriate institutional arrangement will be put in place with defined responsibilities divided among different REDD+ institutions across scales (vertical and horizontal) to handle MRV activities

MRV structure in Ethiopia

A framework for the REDD+ MRV institutional arrangement is recently developed (Figure 8). The MRV system implementation is currently institutionalized at the federal level. Under federal organization logic and in order to ensure sustainability, the MRV system will be implemented also at regional level (R-MRV) in order to ensure a correct and continuous flux of information from the local up to the national level (N-MRV). In initial phase N-MRV will be responsible for generating data and information on REDD+ MRV. This transition phase will be accompanied with specific trainings and capacity transfer to R-MRV to ensure that each technical phase of the Regional-FRLs as well as the MRV systems are well perceived by regions.This phase will support the (technical) dialogue with the regions from the first phases. Besides regional capacity for undertaking Forest Inventory (FIs) will be created in this phase so that regions (R-MRV) will deal with the intensification of sampling on the current NFI in order to improve the regional estimates, and continue to implement subsequent FIs. In the long term following the guidelines produced by the federal level (N-MRV), the R-MRV will monitor the regional REDD + activities and provide the data to the N-MRV.

The national MRV plan is designed for MRV data generation and reporting at three levels. Thus, the workflow for the MRV system would consist of the three different levels defined in the overall framework.

1) Project or intervention level, would consist of projects or interventions with their own monitoring systems. The data collected at this level would include, for instance, data reported by REDD+ projects (i.e. forest inventories, project areas, detailed mapping of LULC classes, etc.), data reported by M&E systems (e.g. planted areas by woredas, etc.) or other data (e.g. biomass surveys conducted by the SLMP MRV). The first level will be responsible to estimate the ER according to the data, guidelines and the protocols provided by the institutions (second and third level).

2) Regional level (R-MRV), led by the RRCUs, this second level can be intended of a regional antenna of the national MRV. At least two technicians will be part of the R-MRV. These technicians support the first level by providing all the relevant information and guidelines, it also ensure that the data and the ER calculations coming from the first level (assigned to each program/intervention area, in case the benefit sharing mechanisms are performance-based) is consistent and guidelines compliant. Once that the consistency is ensured the R-MRV would compile all data from the first level and communicated to the N-MRV (Federal level). The resulting parameter values from this processing at the National level would then be used by the regional level for reporting

purposes. At the occurrence the R-MRV can support the first level in AD and EF estimates activities as the personnel will be trained and coordinated technically by the N-MRV team, this can be done for the area with and without REDD+ activities. The R-MRV will have access to all the data elaborated from the N-MRV and will be when possible, technically independent. Now, REDD+ Coordination Units(RRCUs) exist inOromia, Amhara, Tigray and SNNP regions. The implementation plan for the R-MRV will start from these regions.

3) National level (N-MRV), led by the MRV Unit under the General Directorate of Forestry at the MEFCC, would collect and elaborate primary (cfr. EF and AD) data and the data coming from the R-MRV. The link between third and second level at technical level is ensured by a flux of elaborated end relevant data, trainings and guidelines, reports. The N-MRV responsibilities also includes the production of guidelines, manuals and protocols for the second and third level in order to ensure consistency in the data collection and a correct flux of information between the levels.

The guidelines and protocols will be transparent and will warrant the absolute consistency between levels.The MRV unit will verify all the data coming by the second level and will report the REDD+ secretariat all the ER in order to prepare the REDD+ registry. This structure will ensure an approach top-bottom (national-local) for the data flux and consistency control, and an approach bottom-top (local-national) for the ER data that will feed the REDD registry.

Key Stakeholders toSupport the MRV Capacity

Wondo Genet College of Forestry and Natural Resources: The role of the academia is fundamental for the implementation and sustainability of the MRV. In the implementation phase the capacity building will be applied only with the support of the structures and experts from Wondo Genet, above all for GIS, RS, Botanics, Forestry, and Forest Management for the federal and for the regional level. Wondo Genet is also the technical partner for the technical choices in the MRV implementation. The MRV is also an important study opportunity for students and researchers, the partnership can ensure sustainability in the technical units allowing the MEFCC to draw the best technical team from the more important Forestry College of the country.

Ethiopian Mapping Agency: MEFCC is strengthening the link with EMA in order to ensure the coordination in the release of estimates and maps from the MRV. The EMA experts have been involved in the Activity Data estimation process since the beginning, furthermore the laboratories of EMA are important place where conduct trainings and test methodologies for large classes. The EMA is often also an important repository for satellite images a different resolution. The collaboration between MEFCC and EMA by

the sustainability point of view will ensure both the parties for a quality on the release of Activity Data and a strong technical partner.
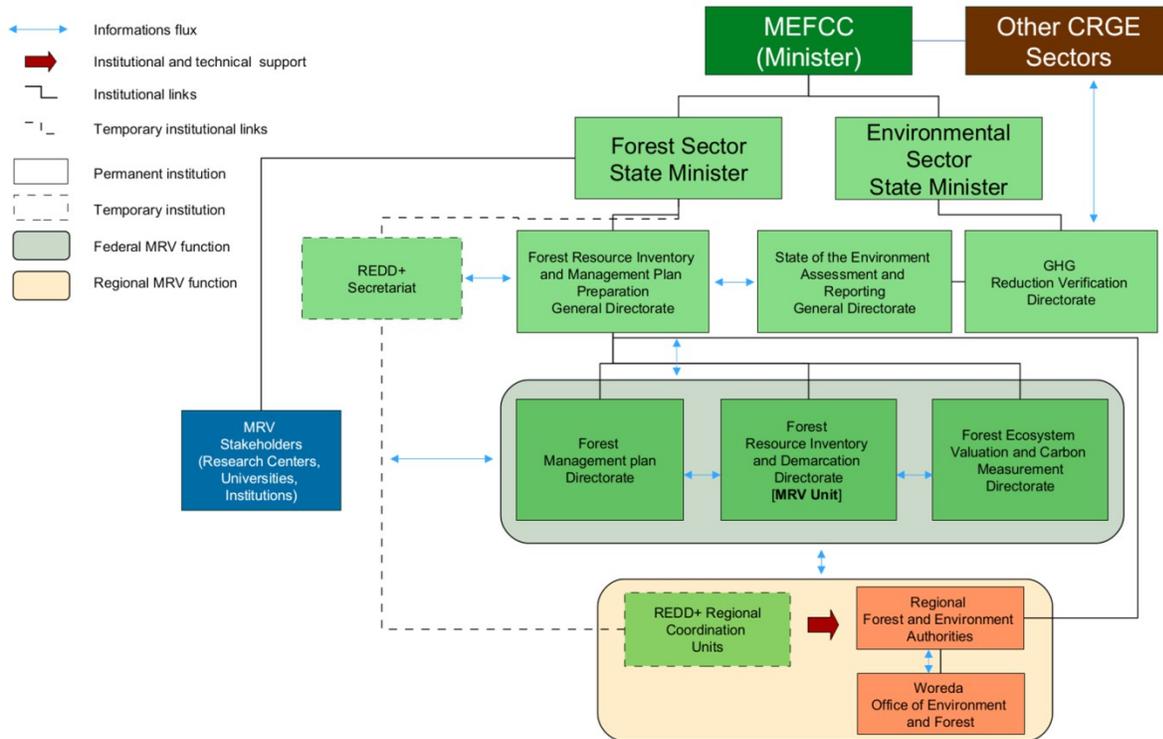
Figure 8: Institutional arrangement for the national REDD+ MRV

Despite its strategic importance (as part of the CRGE strategy) and Ethiopia's commitment for its success, the implementation of REDD+ across the country may face certain risks. These risks can be external (e.g finance) or internal and need to be constantlymonitored and relevant mitigation measures taken. Below is a summary of anticipated risksand possible mitigation measures.

Table 6. A summary of risks, rating and mitigation measures associated with REDD+ implementation

Risk Categories	Rating	Mitigation strategy
1. Political and governance: Legislation approval and enforcement	Moderate as government commitment is high	Awareness creation, advocacy, promotion of championships of high political figures
2. Macroeconomic: Inflation induced living cost may increase labour cost or opportunity cost of free labour	Moderate	Slight labour cost increment can be compensated by the exchange rate gain Work closely with local government and communities to mobilize consensual and free labour contribution
3. Sector strategies and policies : Coordination among sectors	Moderate	Through Interministerial CRGE Committee and make REDD+ as a standing agenda Similar replica at regional states level and Woreda levels will be established to ensure coordination. Resource is allocated for this. Capacitate REDD+ institutions across all tiers of government
4. Technical design of program: Proven experience on PFM and	Moderate	Strengthen Systems and Institutions on MRV as per the national MRV System

A/R; however there could be a challenge with the new MRV system requirement Possible leakage within a jurisdiction		Assign sufficient resources (technical and financial at all levels) Adopt fully landscape approach Create a platform of jurisdictions within the landscape (e.g, a large forest areas across several districts) Enabling environment and good forest governance in all regional states with sufficient resource support Synergy with other projects and programmes (SLM, AGP, etc)
5. Institutional capacity for implementation and sustainability	Moderate	Create critical mass of PFM facilitators Strengthen upfront the GIS and RS capability at federal and regional levels for landscape planning and monitoring Create partnership with national and international centres of excellence on various issues (resource is committed)
6. Fiduciary	Low	Strengthen programme management and financial oversight capabilities at federal and regional level (resource committed) CRGE Facility is accredited to GCF and AF)
7. Environment and social safeguard	Low	Implement national safeguards instruments through strengthening institutional set up Prepare and implement the social and environmental management plan (resource committed)
8. Stakeholders	Low	Set clear, objective and transparent targeting strategy Stakeholder engagement in work planning and monitoring

		Create broader partnership with private sector and civil society both at landscape and federal levels (CRGE Facility has a window for private sector)
9. Land availability: Competing needs for land and long gestation period in forest and related investment	Low	Engaging communities in transitional income generating activities including labour employment and participation in national productive safety net programme (PSNP) Alternative livelihoods promotion Adopt participatory land use planning and management at grassroots level
Natural disaster (Drought impact)	Medium	Climate service informed planning and implementation Tree planting with moisture conservation techniques in drought affected areas Strengthen preparedness for forest fire prevention and continuous participatory monitoring
Uncertainties in availability of external climate fund from international commitment	Moderate	* Diversification of REDD+ funding mechanisms. * Exploring options for the establishment of domestic financing mechanism such as from public sources, public-private partnerships, etc. aiming at funding a greater share of projects with in-country capacity. • Explore other Payment for Environmental Services (PES) opportunities such as water, bio-prospecting, etc. in addition to carbon finance initiatives.
Delay of international level agreements on REDD+		•Active participation in international

systems		negotiations by all Parties
		• Promote common position among developing countries
Design and implementation of REDD+ processes influenced by external entities	Moderate	• Promote country-driven design and implementation of REDD+ processes. *Establish close cooperation with key partners and ensure pro-active engagement
Insufficient inter-sectoral coordination in planning and implementation of REDD+	Moderate	* Ensure effective inter-sectoral coordination through the CRGE inter-ministerial committee and creating additional platforms across organizational levels for coordinated planning and implementation.
REDD+ revenues may not be sufficient to address drivers	High	• Promote other types of investments to address direct drivers of D&D
Overall Rating	Low to Moderate	

ANNEXES

Annex 1.*Key performance indicators of the CSA implementation over the 20 –year program period*

Indicators/ Components	Yield-increasing techniques	Lower emitting techniques
Area (ha)	4,373,333	2,515,717
Potential no. of beneficiaries (households)	6.56 million (0.66 ha per household)	5 to 10 million households (depending on size of irrigated land per household – 0.25 or 0.5 ha)
Average yield-increase per hectare	30%	60 %
Farm-level investments per hectare	824 USD/ha overall (in present value USD 377)	USD 2010 (in present value USD 1100.7)
Farm-level in-kind labour cost per hectare	Present value USD 3541.6	USD 3681 in present value
Overall investment and programmatic level costs (MUSD) covered by the farmers	60300	5056.6
Total project costs	Additional agricultural sector extension and organization cost	Additional agricultural sector extension and organization cost
Estimated emission abatement potential (tCO2) per ha over 20 years	130	940
Estimated emission abatement potential (MtCO2) overall	568.5	2365
Hectare-level benefits NPV (USD) (10% discount over 20 years)	USD 3579 (0.66 ha on average per household)	USD 4798 (0.25 to 0.5 ha irrigated per household)
Average annual employment generated (full time equivalents)	Similar to traditional farming, but much better income generation per household.	Mainly farmers own labour contribution and excavation labour work opportunities
MAC (10% inflation) USD/tCO2	-27.5	-5.1

Co-benefits	• Improved livelihoods and well-being of population • Reduce deforestation/land pressure in rural areas • Improved & varied nutrition among rural population • Improved health effects among population • Better education opportunities among rural farming population	• Improved livelihoods and well-being of population • Reduce deforestation & land pressure in rural areas • Salinization (a potential negative co-benefit) • Improved/varied nutrition among rural population • Improved health effects among population • Better education opportunities due to more wealth among rural population

Annex 2. *Key performance indicators of SFCU implementation over the 20-year program period*

Indicators/ Components	Magnitude		
	EES stoves	**Biogas units**	**Woodlots**
Number of households involved (hectares)	2,923,668	801,464	1,273,000 (ha) (woodlands)
Average fuelwood reduction/hh	1020 kg fuelwood/year (16.75 %)	4559 kg/year (75 %)	-
Household-level or per ha level investments (present value)	USD 60 (USD 30.6)	USD 565 (USD 465)	(USD 1197)
State subsidies and training of masons per sold unit		USD 364	
Overall investment costs for all households	USD 175.42 million	USD 372.92 million	USD 1386.5 million
Total project costs for state	Mainly promotion costs in woredas in all regions	USD 291.73 million for subsidies & training. On top comes promotion costs in woredas	Mainly promotion costs in woredas in all regions
Estimated emission reduction potential (tCO2) per household / per	34.4	153.9	607 (per hectare)

hectare			
Estimated emission reduction potential (MtCO2) overall	77	114.8	429
Household-level benefits (USD) at NPV 10 %	837.8	3415.6	5067 (per hectare)
Average annual employment generated (full time equivalents)	Production and selling of 2,923,668 stoves	33394 masons full-time work years	2.48 million (at 260 work days/year)
Co-benefits	Longer life expectancy for women Better health among the Ethiopian population Better livelihood and wealth situation in households Reduced smoke particle amounts in houses Biogas unit residues to be used as fertilizer in fields Organized fuelwood and construction wood Reduced erosion and soil management on large areas Nitrogen fixing in soils (with some tree species) Better penetration of rain into soils Some agroforestry income opportunities		

Annex 3. *Key performance indicators of Protected forests and PFM operations implementation over the 20-year program period*

Indicators/ Components	Magnitude			
	Closing and rehabilitation of forests (high forest zone)	**PFM operations in high forest zone***	**Commercial timber plantations (high forest zone)**	**Assisted natural regeneration with enrichment planting**
Area (ha)	4,895,390	100,000	1,520,045	1,159,100+ 2,807,155 (woodlands)
Potential no. of beneficiaries (households)	5.26 million Also via ecotourism income generation & similar activities	100,000	2.7 million	2.5 million
Forest-level investment per ha	USD 183	USD 191.3	USD 2114	USD 447.6

			USD 1608	
(present value)				
Forest-level harvesting cost per ha (present value)			USD 1608	
Farm-level harvesting and NTFP collection cost per hectare (present value)		USD 253.7/ha (can be operated as in-kind cost of households)		USD 58.4/ha (can be operated as in-kind cost of households)
Overall investment and programmatic level costs (USD)	USD 895.86 million (mainly law enforcement tasks)	USD 19.13 million (monitoring & supervision)	USD 2450 million (financed by plantation operators)	USD 1089 million (state investment cost only)
Estimated local work years created	5.26 million (at 260 work days/year)	7000 (at 260 work days/year	2.7 million (at 260 work days/year)	1.36 million (at 260 work days/yr)

Annex 4.*Environmental and social benefits and potential environmental and social risks and there mitigation measures*

Risks	Mitigation
Strategic Option (SO1): Enhance cross –sectorial synergies and stakeholder participation	
Environmental	
Increased deforestation and forest degradation due to absence of full collaboration of sectoral institutes with MEFCC(e.g. law enforcement weakness) Less likely collaboration of sectoral institutes for joint planning on forest issues	Coordination unit to be established in relevant Ministry Offices that check synergy of the sectoral institutes Assign counterpart (focal person) in each sectoral office that links MEFCC with them
Social	
Inefficient social service from the sectoral office due to absence or little synergy	Enhance synergy
Strategic Option (SO2): Forest governance and law enforcement	
Environmental	
May bring increased forest degradation from organized illegal cuttings May call for total environmental destruction from mass mobilized cuttings and setting of forest fire	Avail forest products and non-timber forest products which the community depends on the forest from other sources Share benefit to the community from the income accrued due to the protection of forest Increase the awareness of the community through training and education Law enforcement should be in place Allow community use the resource without cutting the trees e.g. for ritual, cultural practices, Educate and train the community on the value of the forest Prepare enough through capacity building (human & material) to suppress fire incase fire is set Empower indigenous grievance redress mechanisms
Social	
Restriction over livestock pasture resource Restriction over expansion of farmlands Restriction over fuel, construction and farm implement forest resources Conflict between local communities and protecting agents Restriction over member of communities that traditionally use	Let the community use grass in cut and carry system Intensify productivity per unit area through improved input use so that areal expansion of agriculture land halt Supply improved cooking and baking stoves to the community which depends on forest for energy source Materialize the second phase growth and transformation plan (GTP) of

the forest for religious rituals Obstruction of routes that connect communities living on either sides of the forest Hosts wild animals that may frequently attack livestock of surrounding communities Strong institutions may override community based institutes that protected forest for centuries	Ethiopia that gives due emphasize to renewable energy sources Shift from wood to metal and/or blocks for construction Ploughing system shift from traditional to lowor no tillage Use customary conflict redress mechanism Enhance the benefit of the community from the enclosed area Compensate as per the complementary RPF provisions Allow communities to practice the ritual and religious practices in the forest as far as these do not affect the forest Area enclosure should leave access routes for communities to move freely If obstruction of access route is must, another reasonably convenient route must be arranged as per the key steps outlined in the complementary Process Framework Maintain wildlife numbers to manageable size Strengthen and empower CBOs as too be more critical and accountable
Strategic Option 3 (SO3): Forest tenure and property right	
Environmental	
Attractive forest tenure and property right may increase land grabbing opportunity May increase the value of forest land over agriculture land Disrupts traditional tenure and forest management systems Change in land use type may be induced (e.g. from agriculture to forest or vice versa)	Implement effective law enforcement to deter land grabbing Government should implement land use planning Synchronize traditional and modern land use system get the best out of the combination Compensation planting required if change is from forest to agricultural lands
Social	
Small holder farmers may be evicted from their holdings for forest investment Loss in land ownership may be induced (e.g. from private to government or vice versa) Coffee forest farmers may be affected by the change of the forested coffee to pure stand of forest	Organize community in CBO/PFM and let them have their own forest Adequate compensation in kind and other means by the government based on the legal framework and the RPF
Strategic Option (SO4) : Land Use Planning	
Environmental	
Change in land use type may be induced (e.g. from agriculture to forest or vice versa)	Compensation planting required if change is from forest to agricultural lands
Social	
Loss in land ownership may be induced (e.g. from private to government or vice versa) Coffee forest farmers may be affected by the change of the forested coffee to pure stand of forest	Adequate compensation in kind and other means by the government based on the legal framework and the RPF

Strategic Option (SO5): Ensure Sustainable Forest Management(PFM operations)

Environmental

Closing high forests for rehabilitation may lead to increased deforestation due to strict access restriction Create economically driven forest mismanagement that may lead to forest degradation May instigate deforestation from marginalized local communities and/or little benefiting PFM members Low economic value forests in lowland areas may not attract PFM organization Coffee farming in the forest has already degraded biodiversity and further permit of coffee farming in the forest may worsen the condition Stakeholder and community may not be mobilized as required Tragedy of the commons	Allow controlled access into forest rehabilitation areas for NTFP collection Hybrid of PFM and Traditional forest management with scientific management so that forests utilized based on forest management plan PFM should encompass all community members with equal benefit sharing Enhance the economic value of the lowland forests through forest industry installation Strict control over the expansion of coffee planting in the forest Put in place where the undergrowth and natural regeneration of tree species allowed to grow Put in place maintenance of minimum number of indigenous tree species where coffee is farmed Build own capacity of fire prevention system Educate people Select appropriate species for the purpose

Social

Complete closure deprives the poor of livelihoods generated from NTFPs Interventions of PFM are prone for any physical damage since it does not have legal support under Ethiopian law PFM experiences in Ethiopia is mainly in a high forests this may have negative impact to adapt in low land woodland areas where there is different socio-economic and ecological conditions Creates dependency syndrome on local communities because of long term incentivization by implementing projects to protect the resource Conflict over benefit sharing and marginalization of certain segments of local community Conflict over skewed power relationship PFM may involve the exclusion of previous forest users from accessing forest resources	Provide controlled access to rehabilitated areas PFM need to be supported by legal framework by promulgating new policy Educate and train communities in the lowland areas about PFM Assist communities in the low land areas to carry-out experience sharing visit in high land areas Encourage self-dependency of the PFM groups through enabling them generate their own income from the forest management activities As long as possible, no community member should be left out from the PFM The PFM bylaw and the legal framework should define the power of the PFM leaders The leader should be sued in case of default Fairly allocate access rights to the members of the community The PFM bylaw should ensure access to all community members

Strategic Option 6 (SO6): Enhancement of forest carbon stock (Assisted natural regeneration with enrichment planting (high forest + woodland) and Commercial timber plantation (high forest zone)

Environmental

Aggravate environmental degradation from setting of fires Aggravate illegal cuttings and destruction of regenerating	Educate and enhance the awareness of community Fence to exclude encroachment

biodiversity Increase conflict between wildlife & humans & increase crop pests (birds, mammals) Risk of monoculture plantation Compromise to local biodiversity Risk of harbor of crop pests in reforested area Some soil impacts can be expected as a result of plantation forests operations, including erosion, decreasing surface runoff and the development of a protective forest floor Poorly designed and mass mobilized conservation measures aggravate soil erosion	Do not come close to the habitat/breeding place of wildlife Share benefit from the wildlife hunting/ ecotourism so that community feels ownership over the resource Use integrated crop pest management practice Plant mixed species Allow natural regeneration under the monoculture species so that the regenerated species overtake the planation Plant local/indigenous tree species Allow natural regeneration under the monoculture species so that the regenerated species overtake the planation Use integrated crop pest management practice Allow undergrowth through wider space planting Install soil and water conservation practice (physical & biological) to harness erosion Implement conservation measures using experts/well trained person only Enforce land use plan to come into force
Social	
Physical relocation of local communities Restriction over livestock pasture resource Restriction over expansion of farmlands Conflict between local communities and protecting agents Obstruction of routes that use to connect communities living on either sides of area closure High costs of seedling production to carry out plantation relative to enrichment plantings Brings loss of economic benefits Create access restriction for resource utilizations Create land computation with local community Can prevent human and livestock mobility From previous experience of large scale plantation people feel fear of loss of land ownership Fire is a concerns that fire will increase and could affect neighboring properties Some soil impacts can be expected as a result of plantation forests operations, including erosion, decreasing surface runoff and the development of a protective forest floor	The household should manage the size of the land that can be managed by the family members Use mechanized/ improved technology for time and energy efficiency reason Adequate compensation in kind or other means by government based on the legal framework and the RPF Use cut and carry system Proportionate the number of livestock with the available resource amount Intensify productivity per unit area through improved input use so that areal expansion of agriculture land halt Use customary conflict redress mechanism Enhance the benefit of the community from the enclosed area Compensate as per the complementary RPF provisions Area enclosure should leave access routes for communities to move freely If obstruction of access route is must, another reasonably convenient route must be arranged Subsidize the seedling production cost through support by NGOs operating in the area collect seed from local sources and raise them in community owned nursery Compensate as per the complementary RPF provisions Ensure benefit sharing from the reforestation/ afforestation through their active involvement in the activities

	Allow cut and carry practice for the grass use and allow the utilization of NTFP
	Implement reforestation/ afforestation on land with no competing interest (e.g. previously forested land or marginalized land) with the community reforestation/ afforestation should leave access routes for communities to move freely
	If obstruction of access route is must, another reasonably convenient route must be arranged as per the process and procedures outlined in the complementary Process framework
	Legal confirm them the forest to be developed on their own land finally belongs to them
	Do not plant fire prone tree species
	Plant mixed species to minimize the risk of fire setting naturally or deliberately
	Train the community on forest fire risk and forest fire management
	Construction fire break line between the forest and the properties of the community
	Get prepared suppressing the fires though availing fires suppressing tools and equipment
	Plant with wider spacing to allow undergrowth so that erosion will be prevented or minimal
	Empower women and youth to play the role

Strategic Options 7 (SO7): Agricultural intensification, Lower emitting techniques for agriculture and Agro-forestry, Nitrogen Management, Soil carbon storage and management, Tillage and residue Management , Water management techniques, Yield increasing techniques for agriculture, Improved livestock management systems, Enhancing and intensification of animal mix, Live stock value-chain efficiency improvement, Water management techniques, Yield increasing techniques for agriculture, Improved livestock management systems, Enhancing and intensification of animal mix, and Live stock value-chain efficiency improvement

Environmental

Quarantined agroforestry species may become invasive and damage the natural environment	Establish strong quarantine centers at national and all regional government levels
May be less effective in cases where mono culture practice more benefits the environment (e.g. in dissected landscapes)	Integrate several crops and tree species in the agroforestry practices
Where the tree and crop or livestock components overlap in their use of resources, competition may lead to reduced productivity(e.g. Competition for water between tree and crop components is likely to limit productivity)	Integrate in the agroforestry system crops with low moisture demand
	Harvest water during the rainy water for dearth period use
	Firebreak structure and equipment should be in place
	Implement watershed management practice to protect reservoirs
Siltation of reservoirs	Protect the farmlands with integrated soil & water conservation (biological & physical) measures
Fertilizer runoff and leaching; eutrophication and effect on human health	Use of inputs (fertilizers and other chemicals) based on soil and plant tissue analysis for nutrient
Runoff of pesticides and similar agricultural chemicals	Treat water before using

Eroded agricultural genetic resources essential for food security in the future.	Protect the farmlands with integrated soil & water conservation (biological & physical) measures
Increased pesticides harms animal and human health by accumulating in soils and leaching into water bodies	Never erode the local genetic resource; work side by side on both local and improved crop varieties to enhance food security
Salinization and regimes of underground water	Use personal protective equipment whenever applying chemicals
Inadequate drainage and over-irrigation causes water logging	Protect animal from entry into the farm area until the chemicals dilute and assimilated by the crops
Lowering of water tables	Continuous leaching of the farms with water
Water diversions for agriculture are a major problem for many aquatic species.	Irrigate the farms based on the soil water requirement analysis
	Use drip irrigation to avoid both under and over irrigating
Solid wastes expected from poultry farm	Implement practices that recharge ground water(watershed management, soil & water conservation structure)
Nuisance odor expected from poultry farm	Diversion of water to only the threshold level beyond which aquatic live do not affected
Mechanization leads to intensive use of agricultural inputs that results in pollution	Use the waste for fertilizing soil in farm land
	Poultry farm to be performed far from the residential areas
	Implement the EMP recommended in the ESIA of the project whenever available
	Test for soil and water samples regularly to check the environmental pollution standards of Ethiopia not breached and also rectify problems earlier if any

Social

Highly fragment land use types of an individual household and may end up in highly reduced products	Increase productivity per unit area through improved input use (seed, fertilizer, etc.).
Difficult to introduce due to long gestation period of the trees	Integrate several types of agroforestry crops and trees to get increased products from diversified crops and trees
Traditional monoculture farming system	Opt for fast growing tree species
Intensive care for the various agroforestry practices consumes the time and energy of household members	Research centers should work on improving (shortening) of the long gestation period of local tree species
Create farmers to depend on agricultural inputs like fertilizer	The agroforestry system should integrate at least 2 and above 2 tree species with other crops
Reduces farmers' ability to use natural pest cycles, leading to increased need for pesticides	Encourage agriculture intensification by the use of compost than fertilizer especially for smallholder farmers
affects human health due to agricultural chemicals	Use integrated pest management system which proved best than single types of pest management practice
Lack of awareness about appropriate use of chemical fertilizers/pesticides due to lack of education and knowledge of community, especially women	Give awareness creation on health and safety of agro-chemicals
Limited purchasing capacity of inputs(improved seeds, fertilizers seedlings) can limit potential gains	Use of personal protetive equipment whenever applying agro-chemicals
CSA sometimes need adopting new farming system and technology which may not be both accepted earlier and	Offer continuous and sustained education & awareness creation on the appropriate use of chemicals

afforded financially respectively Only rich farmers may benefit from CSA Prevalence of water-borne diseases (giardia, schistosomiasis, etc.) may increase Increased exposure to malaria Shortage or lack of water resource to downstream users Conflicts between neighboring communities over water resource utilization Market problem of the products of livestock may be a challenge Milk malnutrition especially to the kids Bird diseases that is communicable to human may be a problem Loss of assets (livestock) to be used for emergency case by selling	Government needs to subsidize any cost related to agricultural intensification to encourage the use of the same by community, especially small holder farmers Educate and train community on the benefit of CSA Assist poor farmers technically and materially Educate and give sustainable training to the community on water and sanitation including water borne diseases Enhance health facility for the treatment of water borne diseases if these are inevitably occurring Avoid water logging through adequately draining Disturb stagnant water continuously to break the breeding/life cycle of the insect Cater mosquito net to the community Implement wise and fair use of water Water use to be implemented based on the schedule to be fixed by the consent of the upper and lower community Harvest excessive water during the high moisture seasons for the later dearth period use Water use to be implemented based on the schedule to be fixed by the consent of the upper and lower community Identify local and oversea markets for the products Maintain milk cows Purchase and transport milk from surplus area Sanitation to be maintained 24 hours a day, 7 days a week Bio-safety measures to be taken Educate farmers on saving of what is earned (from the main income generating or alternative income sources activities) Maintain few livestock to be used as an asset

Strategic Option 8 (SO8) : Reduce demand for fuel wood and charcoal : Energy Efficient stoves, Biogas

Environmental

Increased use of energy inefficient stove may indirectly lead to high biomass energy demand and consumption which in turn cause deforestation Reduces organic residue return to the production system Mismanagement may create additional release of methane to the atmosphere	Go for alternate energy sources (such as solar, wind, hydropower, geothermal) Manage sludge efficiently and ensure maintenance of residues in the farm system Apply proven technology and provide sufficient technical skill training to users

Social

Incur cost to poor local communities Difficult to adopt the technology due to cultural barriers (e.g. Preference of open over closed stoves for fumigation reasons) Difficult to adopt the technology in abundant forest resource areas May be difficult to supply energy efficient cooking stoves, biogas and electricity over short period of time May be difficult to supply the stoves in high demand areas due to long production-marketing chain Stoves in high demand areas due to long production-marketing chain Exploitation by middle men in the market chain Time taking: long awareness creation and technology adoption process High initial investment cost may not attract rural farmers Lack of management skill may discourage farmers	Supply of energy efficient cooking and baking gadgets at subsidized price Avail electricity at affordable price by the community Encourage farmers build corrugated/bricks roof house over hatch house so that there will be no fumigation Educate and give sustained training on the relative advantage of electricity/fuel efficient stove over the traditional stove Avail electricity and cooking/baking stoves at very attractive price Solicit fund for the soonest project implementation e.g. fuel efficient cooking/baking stoves catering Begin with the few number of farmers and gradually increase it Build the capacity of community members for own community demand making of the stoves Focus on institutional and communal schemes than individual households Facilitate access to soft loans provide the necessary skill training

Strategic Option 9 (SO9): Increase wood and charcoal supply : Woodlots (small-holder and community)

Environmental

Exotic species may dominate as these are fast growing than the indigenous Environmental degradation during harvesting and transporting time Adverse micro-climate modification after harvesting The act induce more numbers of charcoal users which means more carbon emission Environmental pollution by particulate matters from the use of charcoal High calorific value wood plantation leads to monoculture that brings about loss in biodiversity Fire risks from the tree species planted for charcoal production as they are susceptible to ignition	Researching on fast growing indigenous tree species Employ semi-mechanized system during harvesting Harvest based on the rotation period (do not harvest all at a time) Sequestrate the emitted carbon by planting trees of environmental value (e.g. for carbon financing, ecosystem protection) Use charcoal gadgets with chimney and lid that prevent entry of particulate into the environment Allow natural regeneration under the plantation Have different planation sites for biodiversity and environmental protection Construct fire breaks between blocks of forest Build capacity (human and material) to suppress fire in case it sets

Social

Market problem may be a challenge high transport, operation and maintenance costs and the length of time it takes to reach commercial centers	Look potential local and oversea forest products improve road network in the coming GTP2 years create wood market centers at optimum distance from the plantation area

May brings food insecurity as farm lands devoted to plantation Labor may be a problem for the family to harvest the forest products Transporting to the market center may be a problem due to farmers financial capacity Loss of livestock due to communal land (such as grazing lands) allocation for tree planting Animal protein malnutrition (meat & milk) due to loss of livestock s grazing lands go for tree plantings Charcoal market problem may be encountered Indoor air pollution that may cause acute and chronic respiratory diseases, malignancies of the aero-digestive tract and lungs, burns, eye diseases	Transport food from surplus production area Incorporate NTFP (such as honey) in the system Hand operated simple machine catering to tree farmers at subsidized price Organize in CBO and pull the resource together to solve financial problem Encourage tree plantings on marginal lands and own plot Transport from met and milk surplus areas Assess the feasibility of charcoal market before embarking on it Educate on the health impacts of indoor charcoal pollution Ventilate rooms whenever using charcoal

Strategic Option 10 (SO10): Improved livestock management

Environmental

Solid wastes expected from poultry farm Nuisance odor expected from poultry farm Mechanization leads to intensive use of agricultural inputs that results in pollution	Use the waste for fertilizing soil in farm land Poultry farm to be performed far from the residential areas Implement the EMP recommended in the ESIA of the project whenever available Test for soil and water samples regularly to check the environmental pollution standards of Ethiopia not breached and also rectify problems earlier if any

Social

Market problem of the products of livestock may be a challenge Milk malnutrition especially to the kids Bird diseases that is communicable to human may be a problem Loss of assets (livestock) to be used for emergency case by selling	Identify local and oversea markets for the products Maintain milk cows Purchase and transport milk from surplus area Sanitation to be maintained 24 hours a day, 7 days a week Bio-safety measures to be taken Educate farmers on saving of what is earned (from the main income generating or alternative income sources activities) Maintain few livestock to be used as an asset

SO11: Promote supplementary income generation

Environmental

Large number and frequent entry into the forest for NTFP collection affects soil seed bank, regeneration and biodiversity Fuel wood collection as NTFP affects the carbon stock of the forest	Provide increased access to collect NTFP from the forest Opt for/expand other sources of energy Distribute fuel efficient cooking/baking stoves Utilize the forest resource based on the management plan of the source annual increase in volume of the forest must matches with the harvest

Some NTFP expand at the clearance of forest (e.g. coffee forest of the country) More number of forest enterprises put the forest under pressure May aggravate deforestation and forest degradation with the increase of the prices of forest products and NTFP parallel to increase in value chain	Marginal profit of the participants of the value chain involver to be determined

Social

Conflict arise if unfair access or use right on NTFP prevail within the community	Provide fair access to community members, especially the underserved and women

Strategic Option 12 (SO12): Capacity building

Environmental

Capacity building may only focus on entities that have direct linkage to REDD+ Soft capacity may not reduce deforestation unless financial and material support is provided	Inclusion of all relevant experts in the forestry sector at different levels Capacity support should include facilities and financial support to forest sector offices

Social

Participation of women and wider stakeholder groups may be neglected Support may be shared by those who already have the needed capacity	Ensure the participation of women is prioritized and all stakeholders are have to the opportunity to participate Support should prioritize those with serious capacity problem

Strategic Option 13 (SO13): Inter-sectoral coordination on planning and implementation

Environmental

Lingering decision making process may result in further destruction of forest resources Inaction may weaken law enforcement and cause lose control over uncontrolled extraction	Put in place a workable mechanism that facilitates with checks and balance in making timely decisions Increased accountability and transparency in the decision making process

Social

Stakeholders may not collaborate as desired	Establish stakeholder coordination and mobilization unit for the daily follow up

Strategic Option 14 (SO14): Demand-driven Research and extension linkage

Environmental

High priority environmental issues may be neglected Research results may not lead to action on the ground	Research needs identification and prioritization should be carried Academics and forestry sector experts should work together to apply research outputs

Social

Community needs may not be properly addressed Underserved communities may not benefit from the research and extension	Maximize local stakeholder involvement in need identification Ensure inclusiveness by involving underserved communities in the research process and benefit sharing

Strategic Option 15 (SO15): Ensure full participation and equitable benefit for women

Environmental

Loss of cultural, medicinal, etc. value species may occur while disregarding others than women	Allow all community segment (men & women, youth & elders, etc.,) contribute available knowledge for the management of the natural resource

Social

Weak collaboration of sectoral institutes in mainstreaming gender Disregard/ marginalize knowledge and expertise of others (other area skill & knowledge will be eroded overtime)	Build and strengthen institutional capacities of implementing partner organizations (IPOs) in gender and REDD+ issues Allow all community segment (men & women, youth & elders, etc.,) contribute available knowledge for the management of the natural resource

Strategic Option 16 (SO16): Benefit sharing

Environmental

REDD+ implementation may results in more deforestation and forest degradation if it carries cost to the community Late recognizer of the benefit of the REDD+ project may adversely affected the REDD+ project forest	Devise mechanism where the REDD+ project absorbs its costs associated with its implementation Give opportunity for the late adopters to become the member and enjoy the benefit

Social

Community may refuse to accept costs that REDD+ project brings to them Lack clear mechanisms for sharing benefits may result in grievances Overridden stakeholders adversely affect the implementation of REDD+ project Income difference may be created between the REDD+ project members and non-members Unequal participation in the development of bylaw may bring disparities in implementing the bylaw	Devise mechanism where the REDD+ project absorbs its costs associated with its implementation There should be policy, strategy and bylaw that define clear benefit sharing mechanism Implement indigenous grievance redress mechanism Exhaustively involve stakeholders based on their degree of contribution Create alternate income generating opportunities for the non-members of the REDD+ projects extend membership to non-members Let all community members participate in the development of the bylaw