ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat
1818 H Street NW
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Email: afbsec@adaptation-fund.org

ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	REGULAR PROJECT
Country/ies:	ETHIOPIA
Title of Project/Programme:	CLIMATE SMART INTEGRATED RURAL DEVELOPMENT PROJECT
Type of Implementing Entity:	NATIONAL IMPLEMENTING ENTITY
Implementing Entity:	MINISTRY OF FINANCE AND ECONOMIC COOPERATION (MOFEC)
Executing Entity/ies:	MINISTRY OF AGRICULTURE AND NATURAL RESOURCES, MINISTRY OF LIVESTOCK AND FISHERIES DEVELOPMENT, MINISTRY OF WATER, IRRIGATION AND ELECTRICITY, MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE
Amount of Financing Requested:	10 000 000 (in U.S Dollars Equivalent)

Project / Programme Background and Context:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

1. PROJECT BACKGROUND AND CONTEXT

1.1. Socio-economic and development context

Ethiopia is a large, landlocked and diverse country, with an area of approximately 1.1 million km^2 and a population of over 90 million. It is one of the world's least developed countries, ranking 173 out of 186 countries in the UNDP 2015 Human Development Index. However, the country has committed to rapid and sustainable development, with a stated ambition to build a lower middle-income economy by 2025, increasing the per capita income of citizens so that it reaches over USD $1,000 by this time.

To deliver this vision, the Government of Ethiopia has produced the Growth and Transformation Plan (GTP)[1] and a succession of medium-term development plans

[1] FDRE (2010). Growth and Transformation Plan (GTP) 2010/11-2014/15. The Federal Democratic Republic of Ethiopia. Ministry of Finance and Economic Development (MoFED). September 2010. Addis Ababa.

spanning three five-year planning periods (2010-2015; 2015-2020 and 2020-2025) (FDRE, 2010). The vision is to deliver average annual economic growth rate of 10% by building a modern and productive agricultural sector, strengthening the industrial base and growing exports.

Ethiopia has shown solid socio-economic progress over the last decade. Progress under the first GTP (GTP-I) period was commendable, with average GDP growth rate of 10%[2] and this high level of growth is expected to continue going forwards. This growth has contributed to significant poverty reduction in urban and rural areas[3], as well as improving education, health, services and infrastructure. The introduction of a social safety net system has also targeted the poor and marginalised, with the introduction of the Drought Resilience and Sustainable Livelihoods Program (DRSLP) and the Productive Safety Nets Programme (PSNP).

Nonetheless, Ethiopia remains a highly climate vulnerable country and future climate change has the potential to significantly reduce future growth trajectories[4]. Indeed, the country has been heavily affected by the 2016 El Niño, experiencing a major drought which has led to a major humanitarian response to support over 10 million people. This vulnerability centres on agriculture, livestock and water management. Agriculture underpins the Ethiopian economy and the majority of livelihoods. It accounts for approximately 40% of GDP (in 2015); nine of the top ten exports and 73% of all employment[5]. Agricultural production is dominated by small-holders and is predominantly rain-fed, making it very sensitive to climate variability and shocks. Similarly, a large proportion (around 60%) of the land area of Ethiopia is arid and is dominated by pastoral farming, which is highly sensitive to climate extremes in general and drought in particular.

Recognising these challenges, Ethiopia is moving towards a low carbon and climate resilient economy. Indeed, it has one of the most advanced climate policy landscapes in Africa. A Climate Resilient Green Economy (CRGE) vision was launched in 2011 which set out that the economy should be resilient against the future impacts of climate change and be delivered with similar greenhouse gas emissions relative to today. In parallel with the CRGE vision, a Green Economy Strategy (GES)[6] was launched, which detailed the pathway for delivering this low carbon middle-income ambition. The GE Strategy is built on four pillars:

1. Improving crop and livestock production practices for higher food security and farmer income while reducing emissions (agricultural and land use efficiency measures);

[2] See NPC (2015), An assessment of performance of GTP-I, Addis Ababa (Amharic version).
[3] Rapid economic growth led to a fall in income poverty. Poverty incidence (or headcount poverty index) decreased from 38.7% in 2004/05 to 23.4% in 2014/15, a reduction of 15.3 percentage point for the last ten years. Similarly, Ethiopia has achieved six of the eight MDGs-the two exceptions being maternal mortality and gender equality.
[4] World Bank (20010). Economics of Adaptation To Climate Change: Ethiopia. Washington DC.
[5] CSA (2014), National Labour Force Survey, Addis Ababa.
[6] FDRE (2011). Ethiopia's Climate-Resilient Green Economy: Green economy strategy. The Federal Democratic Republic of Ethiopia. November,2011. Addis Ababa.

2. Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks (increased GHG sequestration in forestry);
3. Expanding electricity generation from renewable sources of energy for domestic and regional markets; and
4. Leapfrogging to modern and energy-efficient technologies in transport, industry, and buildings.

In translating these pillars to implementation, six priority sectors have been identified: agriculture, livestock, urban, transport, industry and energy. Work is underway to produce detailed climate resilient (CR) sector strategies for all CRGE sectors, with CR strategies already in place for:

- Agriculture and forestry,
- Water and Energy, and
- Transport

The CRGE and the sector strategies are also a key component of Ethiopia's proposed activities in the Intended Nationally Determined Contribution (INDC)[7], which is focused on increasing resilience and reducing vulnerability of livelihoods and landscapes in three pillars; drought; floods and other cross---cutting interventions.

Against this background context, this proposal aligns to the objectives of the second Growth and Transformation Plan (GTPII) and the CRGE strategy.

1.2. Environmental context

Given Ethiopia's extremely large landmass (1.1 million km^2), agricultural production and agro-climatic zones are very varied, though much of the agriculture is characterised by mixed type farming systems.

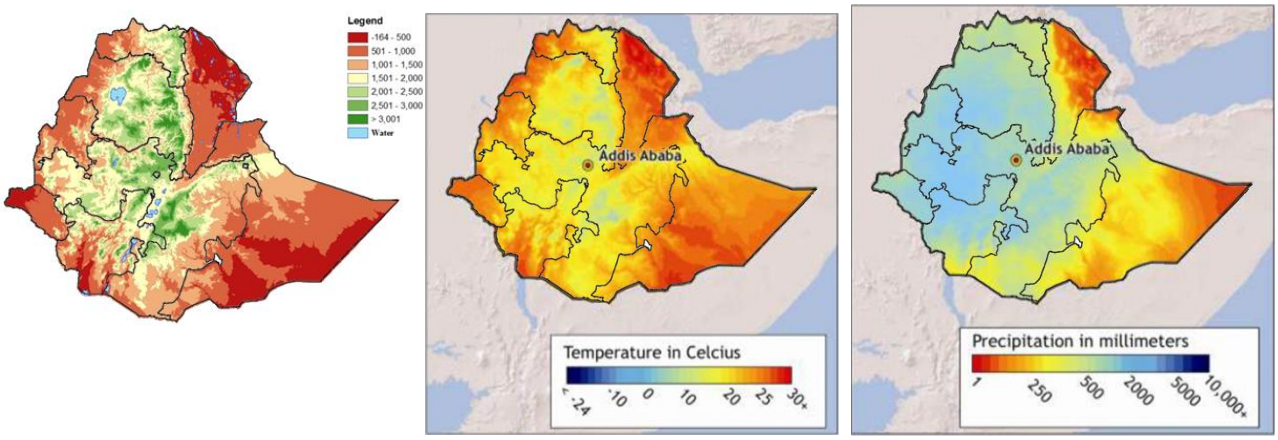
The country also has one of the most complex and variable climates in the world, driven by the varied terrain and its location with respect to global weather systems. Within a few hundred kilometres, the climate ranges from the hot arid Danakil desert, up to cool wet alpine highlands, and down to wet humid lowlands. There are also large differences in topography, with elevations that vary from below sea level to above 4000 metres. These differences in elevation account for the large variations in temperature across the country, from the hot low lands up to the cooler central ridge of the country. Ethiopia's rainfall patterns are particularly complex. Mean annual rainfall varies dramatically, from desert levels up to 2000 mm/year, with a strong gradient across the country (with more rainfall in the west). There are also large monthly variations.

Ethiopia's rainfall is determined mainly by seasonal changes in large-scale global circulation systems, particularly the seasonal north–south movement of the Inter Tropical Convergence Zone (ITCZ). This leads to the bimodal rainfall season experience in southern Ethiopia and the uni-modal season in the North. These seasonal

[7] FDRE (2015). Intended Nationally Determined Contribution (INDC) of the Federal Democratic Republic of Ethiopia.

rainfall patterns have a major influence on agricultural production, as rainfall is highly varied across the months of the year and across the country. Other global climate systems also play a role in Ethiopia's weather, often by influencing the position and strength of the ITCZ. Unlike much of East Africa, there is no simple relationship between global circulation patterns such as the El Niño/La Niña – Southern Oscillation (ENSO) cycle and Ethiopia's climate. ENSO events can lead to changes in precipitation in some regions of the country, but this is specific to the time of season.

Figure 1. Ethiopia's Elevation Profile (metres above sea level) (left), Annual Average Temperature (centre) and Rainfall (right).



These factors lead to the high variability in annual and seasonal rainfall in Ethiopia between years (and even between decades). Yearly variation around mean rainfall levels is 25% and can increase to 50% in some regions. This also leads to the periodic droughts and floods regularly experienced. One result of all this complexity is that the understanding of Ethiopia's climate - and future climate change - is at an early stage.

Related to the variations in climate, Ethiopian agriculture and land-use activities are extremely diverse. This reflects the variation in climate, soil type and cultural practices. This is important as unlike other countries, adaptation policy planning needs to be designed very much with the local context in mind. At the highest and simplest level of aggregation, the combination of elevation and climate. Simple classifications split the country into lowland (<1500 meters and highland areas (> 1500), or use traditional classifications, such as the Kolla (the hot, arid lowlands), Dega (mid-altitude highlands) and Wurch (high altitude). In practice there is much more variation and the Ministry of Agriculture currently works with 32 Agro-Ecological Zones[8].

Ethiopia has rich natural biodiversity and ecosystems, with extensive forests, though natural cover been declining in recent decades. These forest ecosystems are also important habitats for diverse wildlife (Ethiopia ranks 5th in terms of its forest biodiversity in Africa). There are an estimated 4.1 million hectares (ha) of natural high

[8] Georgis, K. Ministry of Agriculture on agro-ecological zones, 2000.

forests, 55.6 million ha of woodlands and shrub lands and 0.5 million ha of planted forest[9]. Together forests cover 3.6% of the total land area.

Finally, Ethiopia is often referred to as the "water tower" of East Africa, holding significant but distributed water reserves. It receives an estimated 980 billion meters^3 of rain annually. 14 major rivers rise in the Ethiopian highlands and estimates of the potential irrigable land are for 3.7 million hectares of gravity-fed surface water, 1.1 million hectares from groundwater and 0.5 million hectares from rainwater harvesting[10]. Nonetheless, this water is unevenly distributed and subject to the high annual variability, discussed above, which means that water availability often is insufficient (both geographically and temporally). The critical issue thus relates to the management of water, to ensure constant availability of supply and to manage the fluctuations across the seasons and especially between years.

1.3. The Problem

1.3.1. Definition of the problem

Agricultural production in Ethiopia is dominated by small-scale subsistence farmers (about 8 million households) who practice traditional farming methods, accounting for 95% of the total area under production, more than 90% of total agricultural output[11] and around 40% of national GDP. These small-holders have an average of less than 1 hectare per holding. The high proportion of rain-fed crop production makes the sector very sensitive to rainfall variability. Indeed, water is the central production factor affecting sustainability and food security, especially in the drylands, and thus the wider drivers of soil water status, water use and water management are critical[12]. The proportion of irrigated land in Ethiopia is currently low, with more than 95% of land cultivated without irrigation[13]. Productivity has historically been constrained by rainfall variability and extremes, low soil fertility and land/soil degradation. Erosion of topsoil and failure to return organic matter contributes further to soil deterioration.

Ethiopia also has a large livestock population (the largest in Africa) and this is important for the GDP of the country and also an important source of exports. Statistics report an estimated 53 million cattle and approximately 26 million sheep and 23 million goats. Livestock is also a source of local income in the highlands (where mixed farming systems are often used) and in lowlands/pastoral farming systems, where livestock are

[9] WBISPP, 2004. A strategic plan for the sustainable development, conservation and management of the woody biomass resources. Final report. Federal Democratic Republic of Ethiopia, Ministry of Agriculture. 60 pp.
[10] Awulachew, S. B., Erkossa, T., and Namara, R. E. (2010). Irrigation potential in Ethiopia. Constraints and opportunities for enhancing the system.
[11] MoA (2011). Agriculture Sector Programme of Plan on Adaptation to Climate Change. Federal Democratic Republic of Ethiopia. Ministry Of Agriculture. Ayana Salehu, Beyene Sebeko, Nebil Miftah, Sertse Sebuh, Tefera Tadesse. Sep 2011. Addis Ababa.
[12] Georgis, Kidane. 2003. Land degradation adoption, low soil fertility and water stress: the major issues for improving crop production and food security in the dryland areas of Ethiopia, In the Proceedings of the food security conference 2003, challenges and prospects food security in Ethiopia, UNCC, Addis, August `3-15, 2003. pp 201-216.
[13] Araya, A., and L. Stroosnijder (2011), Assessing drought risk and irrigation need in northern Ethiopia, Agricultural and Forest Meteorology, 151(4), 425-436.

a critical part of livelihoods and the principal capital of farmers. Indeed, over 80% of agricultural holders practice mixed systems. However, the existing livestock resource is characterized by low productivity and the sector is heavily impacted by the climate, which impacts livestock directly, as well as the availability of fodder. As with crop production, livestock numbers and production are heavily affected by the climate, particularly in drought years.

Critically, both agriculture and livestock sectors are heavily impacted by the frequent major droughts (and floods) that arise in Ethiopia, which occur frequently and lead to large impacts, affecting millions of livelihoods, with high economic costs that affect farmers right through to the national economy.

Drought is a critical climate related hazard in Ethiopia, frequently occurring in many parts of the country. A large part of Ethiopia (~70% by area) is dryland, where annual rainfall is low and seasonal and inter-annual variability is high. These areas are highly vulnerable; desertification and drought have been a persistent problem throughout history, with associated food shortages and famine. Major droughts occurred in 1983-1984, 1987-1988, 1990-1992, 1993-94, 1999-2000, 2002-2003 with major events in 2008/09 and in 2015-16[14]. The economic costs of the largest droughts have been estimated at up to 4% of GDP[15].

Floods are the other major climate related hazard in the country. Major floods – leading to loss of life and property – have occurred in different parts of the country in 1988, 1993, 1994, 1995, 1996 and 2006, although there are much more common smaller events. The costs of floods are more localised but have high local costs.

The other major climate related hazard is soil erosion, linked strongly to rainfall in the hills and highlands. Around 63,000 km^2 of land is potentially at high risk of soil erosion (around 6% of the country). Estimates indicate erosion rates of around 12 tons/ha/year nationally, and a total loss of 1.5 billion tons of soil/year. Previous studies have indicated that water induced soil erosion in Ethiopia is likely to cost 2 -3% of agricultural GDP per year[16].

These climate hazards have a different geographical profile, shown below.

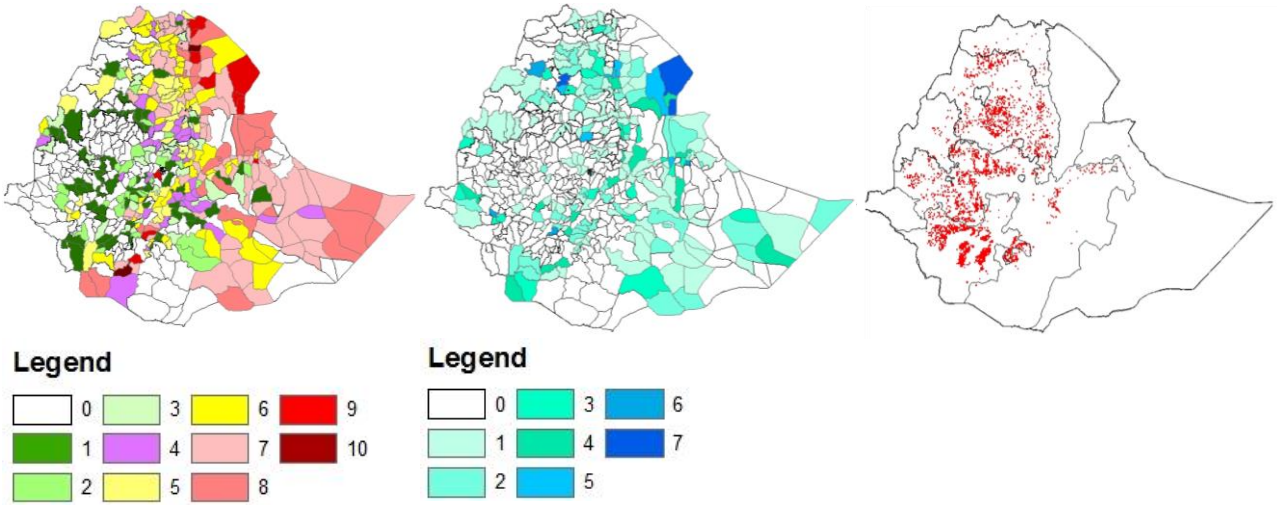
The drought hazard maps compile the historic frequency of droughts over the past decade. This shows the higher risks in an arc round the East of the country. For floods, the risks are more widespread. The main risks from soil erosion have a different geographical profile as it arises in the central areas where there are sleep slopes, high rainfall and certain management practices related to underlying habitat and agriculture.

[14] DRMFSS (2011), Ethiopia Disaster Risk Management Country Plan Project, Phase I, 14 June 2011

[15] Conway, D. and Schipper, E.L.F., 2011. Adaptation to climate change in Africa: Challenges and opportunities identified from Ethiopia. Global Environmental Change, 21(1), pp.227-237.

[16] Yesuf, M., Mekonnen, M., Menale, K., and J. Pender, (2005). Cost of Land Degradation in Ethiopia: A Critical Review of Past Studies. Published by the Environmental Economics Policy Forum in Ethiopia and International Food Policy Research Institute.

Figure 2. Drought Frequency (left) Flood Frequency (centre) and Soil Erosion Risk (right).



Source CRGE Agriculture Strategy. Data for droughts and floods for period 2000 - 2009

This climate variability and extreme events have a major impact in Ethiopia. The World Bank (2006) estimates that hydrological variability costs the Ethiopian economy 38% of its potential growth rate and causes a 25% increase in poverty rates[17]. More recent analysis has estimated the cost to Ethiopia from current climate variability and extremes is, on average, $500 million a year or 2.5% of GDP[18]. Reducing these impacts is therefore an economic priority as well as a necessity for safeguarding people and livelihoods.

1.3.2. Vulnerability analysis

The climate related hazards above act with other non-climatic drivers to drive vulnerability in Ethiopia. The country's geographical location, climate, and socio-economic indicators make it particularly vulnerable to natural and anthropogenic risks. Indeed, the adverse effects of climate change are considered to be significant in the country due to its high vulnerability and low adaptive capacity[19].

Because of the importance of subsistence farming, and the key role that agriculture and livestock plays in livelihoods, particularly in rural areas, the analysis of the agricultural sector extends beyond production to the wider consideration of livelihoods, food security, disasters and its contribution to the national economy. The starting point for this is the different livelihoods in Ethiopia. There has been extensive work to map and

[17] World Bank Ethiopia Managing Water Resources to Maximize Sustainable Growth. 119 (2006).
[18] FRDE (2012). Ethiopia's Climate Resilient Green Economy. Climate Resilience Strategy: Agriculture.
[19] For example, Ethiopia receives a high vulnerability and low readiness score in the ND-GAIN Country Index, a project of the University of Notre Dame Global Adaptation Index (ND-GAIN), summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience, http://index.gain.org/.

monitori livelihoods and their vulnerability. The Atlas of Ethiopian Livelihoods[20] sets a comprehensive baseline. At an aggregate level, this identifies three livelihood zones: pastoral, agro-pastoral and cropping. These fall into specific geographical areas of the country. Previous works has considered how climate vulnerability affects these three different livelihood areas, considering 18 current climate stresses for Ethiopia. This revealed that the key climate shocks and stresses are floods, droughts and soil erosion, but also highlighted the strong livelihood and geographical differences across the country. For example drought is potentially a catastrophic risk for lowland pastoralists and mixed cropping systems in the transitional/agro-pastoral zone, but less of a risk in the highlands.

Alongside this, there is a need to take other non-climatic stressors into account. Many of these relate to the underlying structure of the agricultural and livestock sectors, and the land-use and socio-economic pressures on forestry, as well as socio-economic factors such as population growth, access to services and current incomes. These factors are particularly relevant as they act alongside (or exacerbate) the effects of climate variability and extremes.

The vulnerability of the country to these stresses is aggravated by a host of interrelated factors including the predominance of traditional agricultural and livestock practices, the fragile and degraded natural environment, high levels of poverty, undeveloped infrastructure, high population pressure and uneven settlement patterns, inefficient markets, variable and changing climatic conditions, and competition over scarce resources, especially in the pastoral areas.

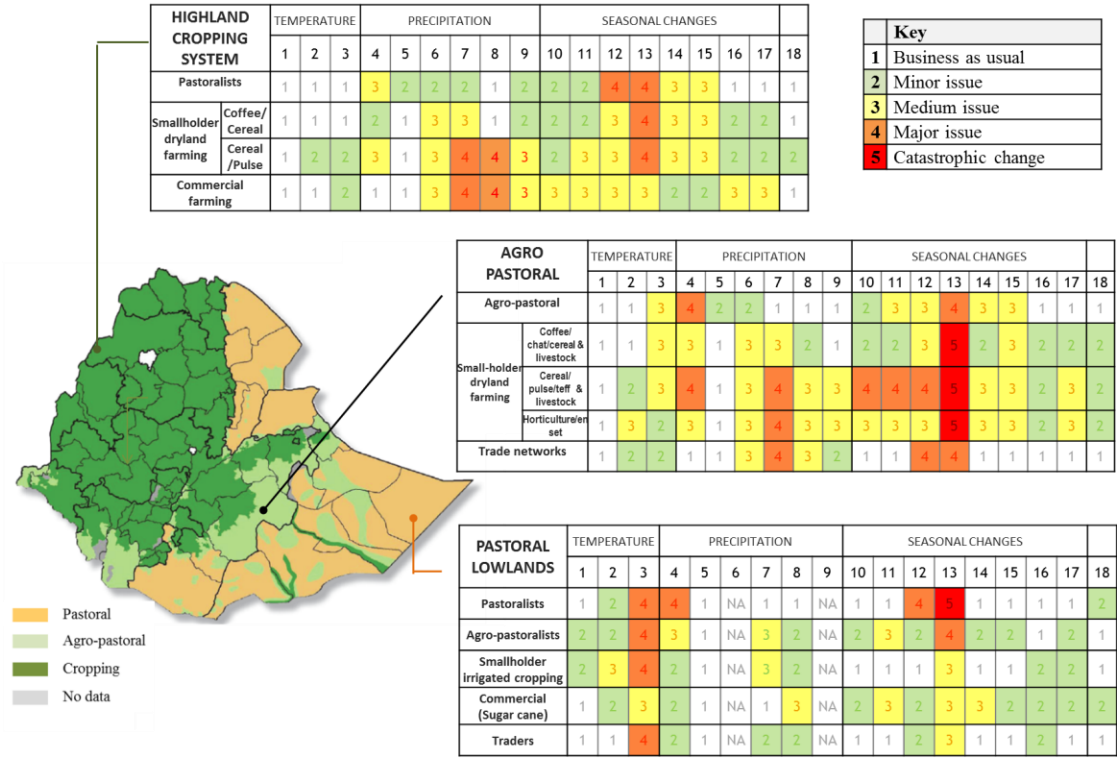
Ethiopia has existing problems of soil fertility, soil degradation and soil erosion. Issues of low soil fertility have long been a problem in the drylands[21]. The proportion of arable land to the total area is low (4-11%) and soil fertility is a declining asset, due to the increasing human and livestock population and the demand for the basic natural resources such as land, water, forest and other agro-biodiversity resource and their products[22].

[20] LIU (2010). An Atlas of Ethiopian Livelihoods: The Livelihoods Integration Unit. USAID and Government of Ethiopia: Disaster Risk Management and Food Security Sector, MOARD

[21] Georgis, Kidane. 2003. Land degradation adoption, low soil fertility and water stress: the major issues for improving crop production and food security in the dryland areas of Ethiopia, In the Proceedings of the food security conference 2003 (Ed. 13-15), challenges and prospects food security in Ethiopia, UNCC, Addis, August `3-15, 2003. pp 201-216.

[22] Georgis Kidane. 2010. Food Security and Agricultural Technology Options in Pastoral Areas of Ethiopia, paper presented in InterAfrica Group Symposium on Agrarian Technology Options and Food Security in Pastoral Area Thursday, 07 October 2010 Harmony Hotel, Addis Ababa, Ethiopia.

Figure 3. Livelihood exposure to climate stresses and threats.



	Climate stresses, threats and opportunities	Key impacts
1	Mean temperature increases over 5-10 yrs	Shifts in agro-ecological zones;
2	More days with a max temperature above 35 °C	Heat stress for some crops
3	More days with a max temperature above 40 °C	Leads to heat stress on people & livestock
4	Mean rainfall over 5 yrs decreasing	Shifts in agro-ecological zones; plus drought regimes
5	Mean rainfall over 5 yrs increasing	Landslides, damage to crops and livestock
6	Mean rainfall over 5 yrs increasing plus large scale floods	Damage to crops, livestock, infrastructure and people
7	3-day rainfall intensity increasing leading to flash floods	Local damages to crops, livestock, infrastructure, people
8	1-hour rainfall intensity	Soil erosion and landslides, some local damages to crops
9	More heavy hail events	Crop damage at certain times in the growing season
10	Changes in rainfall distribution within the season	Significant impact on some crops
11	Number of 10-day dry spells increasing	Significant impact on some crops
12	Higher frequency of seasonal droughts	Significant impact on most crops
13	Higher frequency of consecutive seasonal droughts	Significant impact on livelihoods and economic growth
14	Later onset of rainfall season	Shortens growing period - impacts on crops, fodder
15	Earlier end date of the rainfall season	Shortens growing period - impacts on crops, fodder
16	Decreased predictability of the rainfall season	Less reliable forecasts affects some enterprises
17	Increased uncertainty in rainfall distributions	Increases risk, important for some enterprises
18	Increases in cloudiness & humidity	Reduces radiation, increases thermal stress for people

Small scale subsistence farmers have low levels of technology, limited farm inputs, low access to finance/credit services[23], limited extension services, inadequate transport networks and face high transport costs and a lack of market information. They also have

[23] Di Falco, S., Veronesi, M., and Yesuf, M. (2011). Does Adaptation to Climate Change Provide Food Security? A Micro-Perspective from Ethiopia. American Journal of Agricultural Economics, 93(3), 829–846. doi:10.1093/ajae/aar006

poor access to information on climate variability, forecasts, etc. noting these also sit within broader issues of level of education and dependency ratio, and wider coping capacity in relation to non-agriculture-related activities, such as income diversification. There are also underlying risks from pests and diseases, reducing crop production and increasing storage losses, and disease is an important issue for livestock, especially in relation to livelihoods. Many of these pests and diseases are also climate sensitive. These issues also affect resilience. As an example, in household surveys, access to credit is identified as a major reason why adaptive efforts, such as irrigation schemes or change in crop varieties are not made and further that poor climate information is a significant barrier for farmers in Ethiopia in adapting[24].

Forests contribute an estimated 4% of GDP through the production of timber, honey, and forest coffee. Forests are essential to rural livelihoods through the provision of wood, fuel-wood and non-timber forest products (NTFPs) and forest and tree resources provide over one-third of rural household total cash income[25,26], as well as many non-cash benefits. Forests also provide wider ecosystem services, notably through their role in watershed management, helping to reduce run-off, flooding and soil erosion, regulating water flow and reducing siltation. Given the increasing emphasis placed by the Ethiopian government on irrigation development, the watershed protection effect of forests and vegetation should be given a high priority. They also have a major function in carbon sequestration. Many communities use forests as a form of adaptation during climate stress such as droughts, due the income diversification and food[27]. These forests are also critical to Ethiopia's biodiversity. However, forest cover has been declining over recent decades, falling from around 15 million ha in 1990 to 12 million ha in 2010. Forests are also vulnerable to existing climate related hazards in Ethiopia including frequent and extended drought periods, floods, strong winds, frost, fires and heat waves (high temperatures). Managing forests and their ecosystems is therefore important in enhancing resilience and community coping strategies. Forests and woodlands of Ethiopia present a large stock of carbon and high sequestration potential. Importantly, these forests will assist the green economy development strategy of the government of Ethiopia by sequestrating and buffering the greenhouse gases emitted from the growing and expanding economy.

Putting this altogether, when designing adaptation responses, it is necessary to tackle the multiple stresses that drive vulnerability in Ethiopia. It is also necessary to differentiate the adaptation interventions according to risk and livelihood type, to make

[24] Di Falco, S., Veronesi, M., and Yesuf, M. (2011). Does Adaptation to Climate Change Provide Food Security? A Micro-Perspective from Ethiopia. American Journal of Agricultural Economics, 93(3), 829–846. doi:10.1093/ajae/aar006

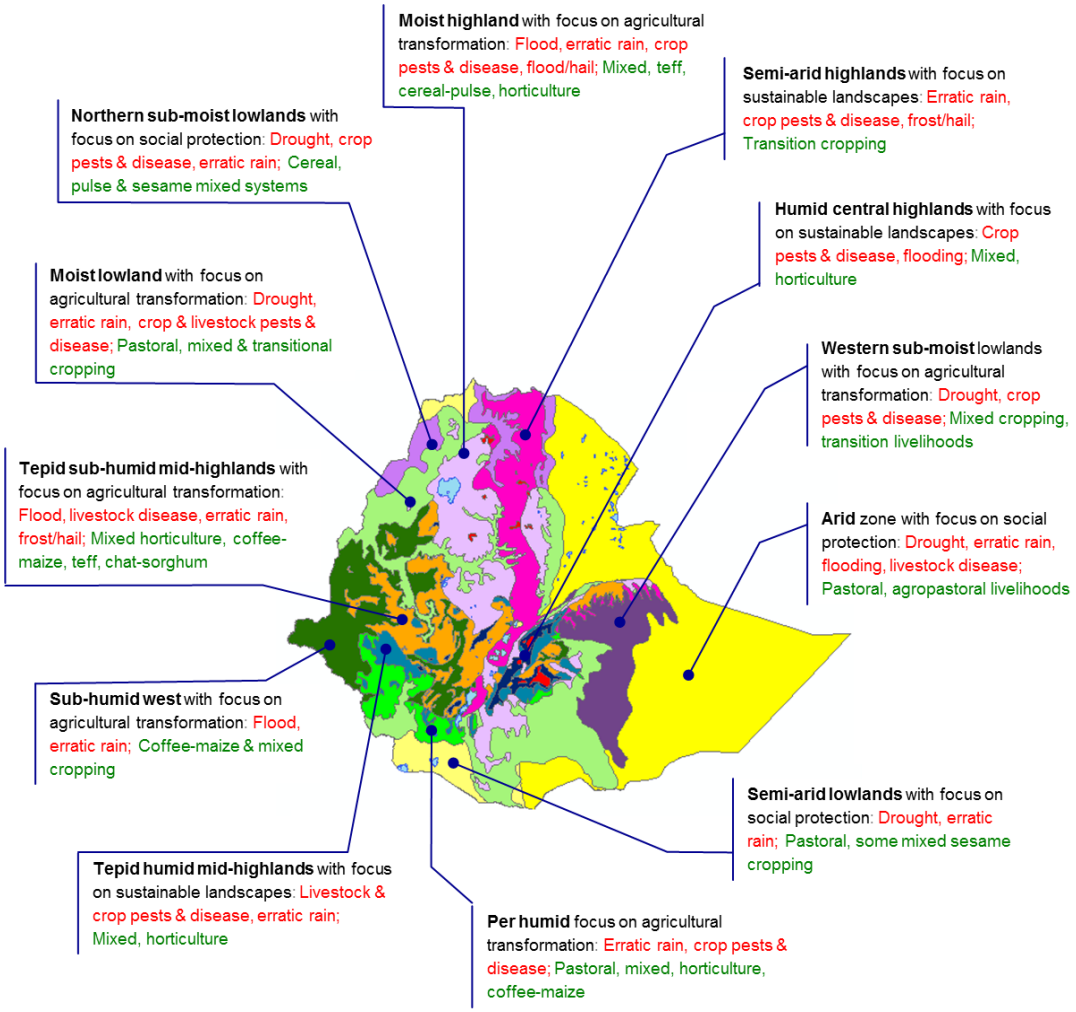
[25] Lemenih, M. (2011). The role of forests in rural livelihoods and climate change adaptation. In: Ensermu Kelbesa and Abenet Girmna (Eds.), Multiple Uses of Forests in Ethiopia vs Associated Challenge: Maximizing Benefits while Curbing Limitations. In commemoration of 3rd National Mother Earth Day and 2011 International Year of Forests. Forum for Environment, Addis Ababa. Pp. 95-110.

[26] Tesfaye, Y., Roos, A. and B.M. Campbell and Bohlin F. (2010). Forest Incomes and Poverty Alleviation Under Participatory Forest Management in the Bale Highlands, Southern Ethiopia. International Forestry Review, 12(1):66-77.

[27] Garedew, E. (2010). Land-Use and Land-Cover Dynamics and Rural Livelihood Perspectives, in the Semi-Arid Areas of Central Rift Valley of Ethiopia. PhD Dissertation, Swedish University of Agricultural Sciences, Umea, Sweden.

sure that the appropriate risks are targeted with the right adaptation options. To help address this, the CRGE produced Adaptation Planning Zones, shown below. These provide a useful categorisation for this proposal, especially in relation to the adaptation options proposed for different areas.

Figure 4. Risk Profiles for Adaptation Planning Zones.



Barriers

In looking at the implementation of adaptation, it is important to consider the existing constraints in place. There are a number of barriers to current adaptation that make it harder to plan and implement and lead to the high vulnerability in Ethiopia. These include a range of economic, social and institutional factors, including market failures, policy failures, governance failures and behavioural barriers. These factors can make it difficult to make decisions or take action, even when it is apparent that some form of action is needed. These barriers result in less efficient or less effective adaptation, missed opportunities or higher costs. Addressing these barriers is critical to successful adaptation.

Many of these barriers arise from the high vulnerability and high levels of poverty highlighted above at the community level. The main factors that determine a community's adaptive capacity include economic wealth, technology, information and skills and infrastructure, institutions and equity. For a community to adapt, these characteristics have to be met. In particular, householods in the target Woredas are characterized by small and degraded farm size, low income and limited income diversification, lack of modern agricultural inuts including drought-tolerant seeds, limited access to irrigation facilities, shortage of potable water, shortage of low-yield livestock varieties, limited access to weather information, lack of access to value chains, limited access to credit facilities, low overall literacy rate or educational attainment, fragile ecosystems and weak institutions at the Woreda level to prepare climate-responsive plans and budgets. Climate change further exacerbates residents' already-vulnerable livelihoods and manifests its effects through increased school dropout rates, animal and crop disease, crop failure, livestock loss, malnutrition, human disease, loss of biodiversity, and increased over-exploitation of natural resources such as forest, woodlands, wetlands and pasture.

Understanding these baseline barriers provides key information on how to enhance the uptake of adaptation, and the success of this proposed project, and these factors are therefore built into this proposal.

Furthermore, farmers in Ethiopia do already use a wide variety of practices to deal with climate variability. Studies show that these practices are changing in response to changing risks and trends in climate and analysis[28]. At the farm level, methods used by farmers to adapt to climate change include use of different crop varieties (the most common approach), tree planting, soil conservation, early and late planting and irrigation. However, around 42 percent of the surveyed farmers had not taken any adaptation measures and furthermore, some of the responses taken were not beneficial for long-term resilience or led to high welfare costs, such as from the loans from money lenders, sale of assets such as livestock and agricultural tools or reduction of consumption levels. Farmer surveys highlight that the key barriers to climate daptation are the a lack of information, money, labour or land that prevent them taking any action.

Finally, there are also important **gender** inequalities in the current agricultural system, which need to be taken into account given the important role of women in agriculture, and conversely the importance of agriculture to women: as an example, in the drylands, women obtain a large share of their income from livestock. Women are more vulnerable to climate change impacts because they have less financial resources, lack alternative income opportunities and because they depend more directly on primary natural resources[29]: the mortality rates from natural climatic hazards for women are higher than

[28] Deressa, T., Hassan, Rashid M and Ringler, C., 2008. Measuring Ethiopian Farmers ' Vulnerability to Climate Change Across Regional States. IFPRI Discussion Paper 00806, (October).
[29] Bekele, M. 2011. Forest plantations and woodlots in Ethiopia. African Forest Forum, working paper series, Volume 1, issue 22, Nairobi, Kenya.

for men. Recognizing and addressing these gender issues is a key area for tackling broader vulnerability, and for building the resilience of households and communities. Research based on gender-disaggregated data has shown that men's higher level of risk aversion in Ethiopia compared to that of women has a negative impact on adaptation such as the adoption of soil and water conservation practices.[30]. In contrast, female-headed households are more likely to take up adaptation options. [31]

1.4. Current climate variability and future climate change

1.4.1. Recent Climate Trends

There is a clear and observable positive trend in temperature observations in Ethiopia, with a strong warming trend and observations of increasing minimum and maximum temperatures over the past fifty years. The NAPA[32] reported average annual minimum temperatures rising by 0.2 – 0.4°C per decade and average annual maximum temperature by 0.1°C per decade, thus at an aggregate level temperatures have increased by an average of around 1°C since the 1960s. The recent second national communication[33] reports a temperature increase 0.1-0.4°C per decade, resulting in an average temperature increase of around 1°C (0.25°C per decade) since the 1960s.

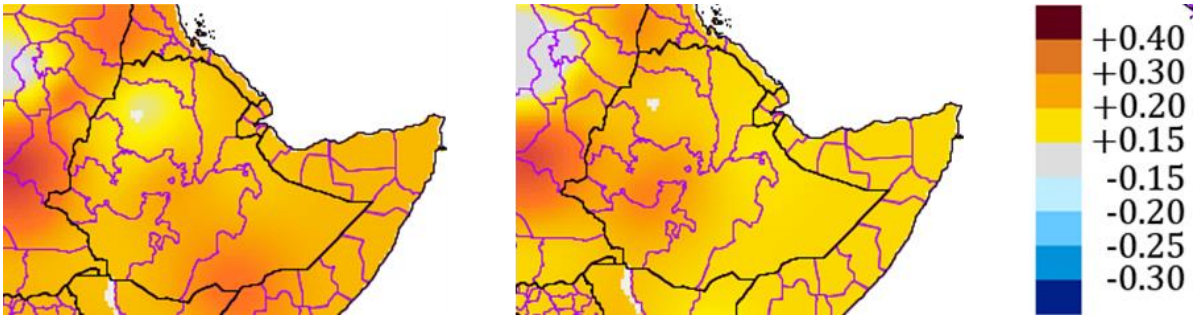
Strong increases have been experienced over the entire country, with slightly greater increases in the Nile valley. There are also reports of increasing trends in the frequency of hot days, increasing trends in the frequency of hot nights, and decreases in the frequency of cold days and nights. The observed temperature increases are expected to lead to increased evapotranspiration, and reduced soil moisture content.

It is difficult to pick out trends in precipitation observed at the national level over the past sixty years, as Ethiopia has one of the highest levels of inter-annual and inter-decadal variability worldwide. The recent second national communication indicates a slightly declining trend, indicative of a decrease in total annual rainfall over the years. Perhaps more usefully, there are some underlying trends which emerge when specific regions and seasons are considered. Recent analysis of satellite and gauge data shows a decline in spring and summer rains – by as much as 15-20% since the 1960s in south-central Ethiopia[34]. Some locations, e.g. in the Bale mountains, may therefore have seen a decrease in average rainfall of over 100mm between 1970 and today (against average annual totals of approximately 750mm), though this is still within the inter-annual variability (annual rainfall ranges between 550mm and 950mm from year to year). Crop yields and pasture conditions in these heavily populated areas are already

[30] Berga, H., and E. Bryan. 2014. "The Role of Gender in Climate Change Adaptation: Evidence from the Nile Basin of Ethiopia." Unpublished, International Food Policy Research Institute, Washington, DC.
[31] Nhemachena, C. and Hassan, R., 2007. Micro-Level Analysis of Farmers ' Adaptation to Climate Change in Southern Africa. IFPRI Discussion Paper 00714, (August).
[32] FDRE (2007). Climate Change National Adaptation Programme of Action (NAPA) of Ethiopia. Federal Democratic Republic of Ethiopia. Ministry of Water Resources/National Meteorological Services Agency. June 2007. Addis Ababa, Ethiopia.
[33] FRDE (2015). Ethiopia's Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC). May 2015. Ministry of Environment and Forest.
[34] Funk, C. et al., 2012. A Climate Trend Analysis of Ethiopia, Available at: http://pubs.usgs.gov/fs/2012/3053/.

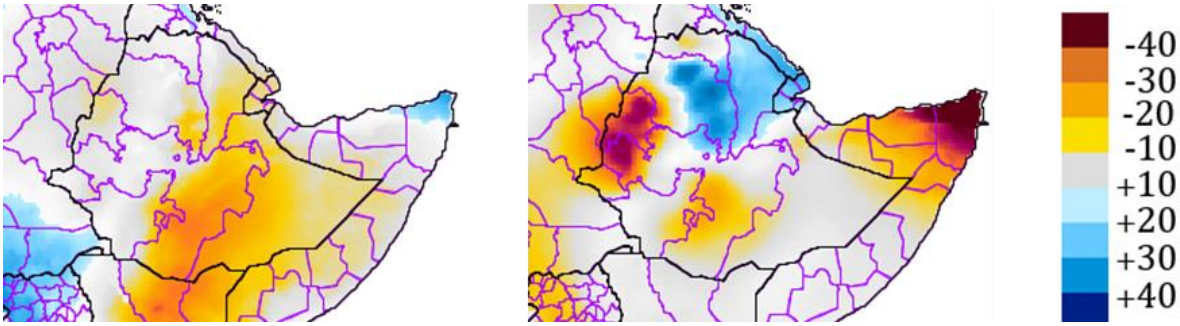
likely to have been affected in these areas and could be heavily affected if trends continue over future decades. These trends are attributed to warmer sea surface temperature in the Indian Ocean, which are expected to persist over the next decade at least.

Figure 5. Temperature trends (C per decade)[35].



March–June **June–Sept**

Figure 6. Rainfall trends (C per decade.



March–June **June–Sept**

For other changes that are important for agricultural systems, notably the timing and onset of the rains, it is more difficult to pick up trends, because of the historically high levels of variability. Nonetheless, several studies report farmer perceptions of changing trends, with increasing variability and unpredictability of the rainy season, particularly during the Belg season.

While both drought and flood data show some higher frequency of events in the last decade, and trends of increasing frequency have been reported, particularly care needs to be taken in interpreting these data, because of the improvements in reporting over time and the high levels of inter-decadal climate variability in Ethiopia.

Nevertheless, the recent national communication reports a pronounced increase in the projections of the total rainfall occurring in “heavy” rainfall events, indicative of an increase in the potential for floods.

[35] Funk, C. et al., 2012. A Climate Trend Analysis of Ethiopia, Available at: http://pubs.usgs.gov/fs/2012/3053/.

Finally, it is important to consider the underlying year-to-year variability in rainfall, as this is very high in Ethiopia. This inter-annual variability is much larger than the long term trends, thus it is possible that trends could be eclipsed by the existing variability. In terms of adaptation, this means that farmers are now experiencing rainfall climates similar to those that they might face in the future. Therefore this highlights the need to help the sector better cope with climate variability as an important part of adapting to future change.

1.4.2. The 2015-2016 El Niño

As highlighted above, Ethiopia is frequently hit by large scale weather extremes, notably droughts, which are often linked to global weather patterns. One such event has happened recently, with the large global El Niño weather extreme that built up over 2015 and continued into 2016. This was one of the largest events on record (initially estimated as a 1 in 20 year event or more) and this has had major impacts on Africa, including in Ethiopia.

Driven by the ongoing El Niño, the consecutive failure of two rainy seasons in 2015 has had profound impact on the lives and livelihoods of millions, especially impacting rural households engaged in the agriculture sector[36]. Several pastoral areas have recorded significant rainfall deficits – up to 50 percent below average – with the most extreme drought conditions are in the northern regional states. Many have been forced to sell their production assets and abandon their livelihoods, and more than 10.2 million people are now food insecure in Ethiopia. This has triggered a humanitarian crisis[37], with an estimated response plan costing of $1.4 billion.

1.4.3. Future Climate Change

The modelling of climate change in Ethiopia is very challenging and any results are characterised by high uncertainty.

There is a high level of confidence that Ethiopia will get warmer in the future, but low confidence on the 'central' estimate of what the degree of will be. Climate models project that temperatures will continue to rise in Ethiopia, with 0.5 to 1.5°C of warming by the 2020s and 1.5 to 3°Cs by the 2050s, relative to the baseline 1961-1990 period[38]. This implies much higher rates of change than seen historically. There will also be increases in the number of days considered hot and very hot, impacting on evapo-transpiration and soil moisture.

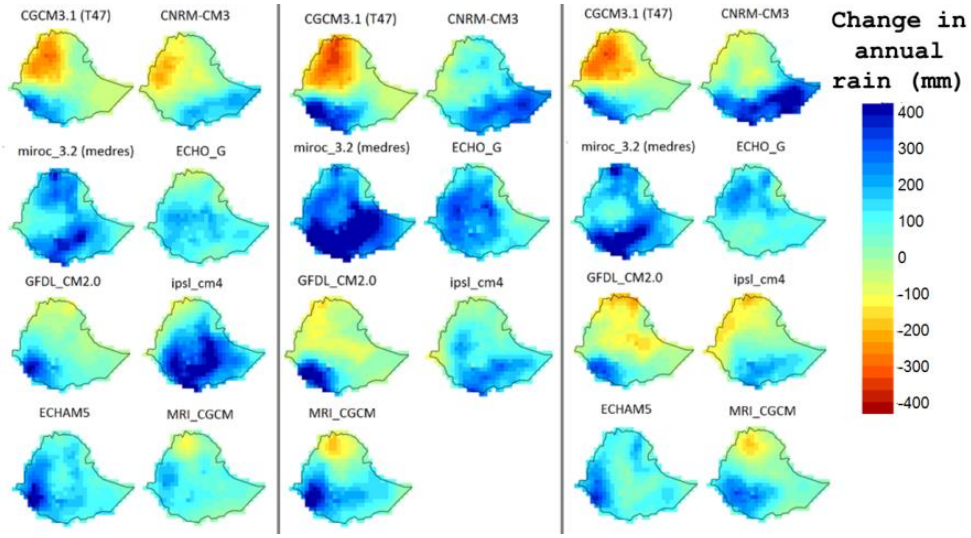
The projections of precipitation are much more complex to understand, and great care must be taken in interpreting model outputs. Rainfall is a more difficult climate

[36] FAO in Ethiopia. El Niño Response Plan 2016
[37] Ethiopia. 2016 Humanitarian Requirements Document.
[38] FRDE (2012). Ethiopia's Climate Resilient Green Economy. Climate Resilience Strategy: Agriculture.

parameter to model and Ethiopian climatology is more complex and challenging than for most countries.

This makes it difficult to project future rainfall, even in terms of the sign. While some studies report that there may (on average) be a small increase in the annual precipitation over the country (e.g. as in the 2nd National Communication) – and especially in the south - these results should be treated with extreme caution. The change projected from the climate models is within the range of current inter-annual variability, thus making it extremely difficult to detect. Furthermore, the pattern of rainfall changes from climate change varies by across the country, reflecting the different climatic zones. Of critical importance, analysis of multi-model ensembles shows that there is a very large range of projected change for Ethiopia, with the models reporting an envelope of +/- 30% change in future annual rainfall over the next 30 – 40 years[39].

Figure 7. Rainfall trends (mid-century) climate change for low, medium and high emission scenarios showing model and scenario uncertainty. CRGE Agriculture.



This uncertainty is critical in the design of this proposal. There is a very wide envelop of future change from climate change in Ethiopia, from warm, wet to dry, hot futures. These will lead to varying degrees of impact, but at the current time is not possible to ascertain which outcome is likely to emerge. To illustrate this point explicitly, while nearly all the climate change models indicate that rainfall will increase in the south of the country (see Figure 7) – this is the one part of the country where observed rainfall trends indicate a drying signal, i.e. a decrease (see Figure 6).

As a consequence, this proposal has not focused on predicting the future (given this is impossible) but instead has provided a proposal design that operates with this uncertainty in mind, i.e. to advance decision making under uncertainty, and to put in

[39] Conway, D. and Schipper, E.L.F., 2011. Adaptation to climate change in Africa: Challenges and opportunities identified from Ethiopia. Global Environmental Change, 21(1), pp.227-237.

stronger elements of monitoring and learning to help understand how the climate is affecting Ethiopia and to feed this back into informing future decisions.

1.4.4. Future Climate Change Impacts

Agriculture is a highly climate sensitive sector and climate change has the potential to lead to major effects[40]. While the issue of water availability is critical, linking to the earlier section, there is a much wider set of risks. This is based on many potential climate variables, which can impact directly and indirectly on crop production, agricultural supply and value chains. They involve potentially negative effects (e.g. from lower rainfall and/or increasing variability) but also potentially positive effects (e.g. from CO_2 fertilization and from extended growing seasons), as well as complex changes from the changing risks of extreme events, the range and prevalence of pests and disease, etc. These lead, in turn, to changes in production and thus trade. These are also potential effects from climate change on horticulture, viniculture, industrial crops and livestock, and on the multi-functionality role of agriculture. There are also important impacts on individual livelihoods, e.g. from subsistence farmers up to national economies: in the most extreme cases, there are potential risks to food security and the breakdown of food systems, possibly leading to socially contingent effects.

The patterns of potential impacts of climate change on agriculture vary across time and location. For temperature increases of 2°C, negative impacts on yield are projected for major crops in tropical and temperate regions (without adaptation), although individual locations may benefit below this[41].

Livestock are already affected by climate variability, particularly drought, though some of the prevalent species (in pastoralist lands) have been bred for resilience. Climate affects livestock production and productivity both directly and indirectly. The direct effects include temperature and other climate factors (humidity, wind speed) on animal growth, milk production, wool production, reproduction and general animal health, while the indirect effects include climatic influences on availability of water and the quantity and quality of feedstuffs such as pasture, forage, grain and the severity and distribution of livestock diseases and parasites. These may lead to effects such as mortality (from heat stress), declining productivity or quality (value) or affect production costs, and they may even affect the viability of existing livelihood systems (from changes in the suitability of areas due to bioclimatic shifts) that rely critically on these animals. Climate change may also alter the prevalence and frequency of many livestock pests and diseases.

[40] IPCC (2014) [Porter, J.R., L. Xie, A.J. Challinor, K. Cochrane, S.M. Howden, M.M. Iqbal, D.B. Lobell, and M.I. Travasso]. Food security and food production systems. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 485-533.

[41] Rosenzweig, C., et al (2013). Assessing agricultural risks of climate change in the 21st century in a global gridded crop model intercomparison. PNAS(ISI-MIP Special Feature). PNAS.

There have been several studies that have considered the future risks from climate change to agriculture and livestock in Ethiopia, including analysis of costs. The World Bank EACC study in Ethiopia[42] assessed the impacts and economic costs of climate change from impacts on major crops and livestock. Large impacts on crop yields were projected under dry scenarios due to the frequent occurrence of droughts. The study also projected a decline of approximately 30% in livestock productivity by 2050. The overall economic impact depended on the scenario, but for the most negative outcomes, the study estimated losses of up to 7% of agriculture GDP by 2050.

There have also been several farm level economic studies (Ricardian assessments) that have also been undertaken in Ethiopia on climate change. One study[43] reported that increasing temperature during summer and winter would significantly reduce crop net revenue per hectare and found negative impacts from climate change. Another study[44] report similar findings, with the increase in seasonal temperatures decreasing crop net revenue per hectare for summer and winter seasons. When put into a wider economy model (CGE), the study found farm incomes (GDP per capita) could be 30 percent lower under future climate change (compared to the baseline).

Climate change is also expected to affect food security. Under drier scenarios, there would be an increase in humanitarian needs. Analysis[45] indicates that for the driest scenarios, there would be significant increases in the number of beneficiaries needing assistance under the programme for future dry scenarios (a 32% average increase in the number of people needing assistance under the PSNP under extreme dry scenarios by the 2020s, with a potential doubling of beneficiaries in extremely dry years), and possibly even higher relative increases in costs under these scenarios.

Climate change is also likely to exacerbate the existing problems of soil erosion in the wetter and steeper parts of the country. While the projections of average rainfall in Ethiopia are unclear, projections indicate with more confidence that there might be an increase in the intensity of high rainfall events[46]. A major scientific theory underpinning this result is that a warmer atmosphere will be able to hold more water, thus more will be available for a given rainfall event. In East Africa, studies[47] report that a large proportion of Ethiopia might experience increased rainfall intensity increasing the risks

[42] World Bank (2010). Ethiopia - Economics of adaptation to climate change. Washington, DC: World Bank.
[43] Deressa, Temesgen Tadesse, 2007. Measuring the Economic Impact of Climate Change on Ethiopian Agriculture: Ricardian Approach. SSRN eLibrary.
Deressa, T., Hassan, R. M., et al., 2008. Analyzing the Determinants of Farmers ' Choice of Adaptation Methods and Perceptions of Climate Change in the Nile Basin of Ethiopia. IFPRI Discussion Paper 00798, (September).
[44] Gebreegziabher, Z., Alemu Mekonnen, Rahel Deribe, Samuel Abera (2010, revised 2012). Crop-livestock inter-linkages and climate change implications on Ethiopia's agriculture: a Ricardian approach
Gebreegziabher, Z., Jesper Stage, Alemu Mekonnen, and Atlaw Alemu (2011). Climate Change and the Ethiopian Economy: A Computable General Equilibrium Analysis. Environment for Development Discussion Paper Series October 2011. EfD DP 11-09.
[45] Conway, D. and Schipper, E.L.F., 2011. Adaptation to climate change in Africa: Challenges and opportunities identified from Ethiopia. Global Environmental Change, 21(1), pp.227-237.
[46] Allan, Richard P, Brian J Soden, Viju O John, William Ingram, and Peter Good. 2010. "Current Changes in Tropical Precipitation." Environmental Research Letters 5 (2) (April 9): 025205. doi:10.1088/1748-9326/5/2/025205.
[47] Shongwe, Mxolisi E., Geert Jan van Oldenborgh, Bart van den Hurk, Maarten van Aalst, 2011: Projected Changes in Mean and Extreme Precipitation in Africa under Global Warming. Part II: East Africa. J. Climate, 24, 3718–3733. doi: 10.1175/2010JCLI2883.1

of flooding and soil erosion. An analysis of the potential change in monthly rainfall, and the potential increases in heavy rainfall events from climate change could see increases in intensity of around 10 to 20%. This could lead to additional costs from soil erosion of 1 -2 t/hectare/year, or at an aggregate scale, up to 1% of agricultural GDP.

There are a large number of potential effects from climate change on forests and associated ecosystem services. While tree growth may be enhanced by some processes related to climate change (including CO_2 fertilization, longer growing seasons), forests are potentially negatively impacted by others, notably from changing ecological zones, the potential for high temperatures, reduced rainfall and increased variability including extreme events such as drought. Indeed, forests are potentially very vulnerable because of the long life-times and slow growth rates involved, and the fact that existing stocks have evolved to the current climate over millennia. There are also potential effects to forests through changes in soil conditions and hydrology, pests and diseases, wider forest ecosystem (health) and a potentially greater risk of fires, etc.

The most likely impacts are a shift in altitudinal distribution of vegetation types. This will result in the expansion of tropical dry and very dry forests, and a shrinking of forests in moist and alpine ecosystems. Such studies[48] in Ethiopia indicate reductions in the areas of forest coverage, fragmentation of forest life zones, the disappearance of montane and lower montane wet forest and subtropical desert scrub, but with the appearance of tropical moist forest and expansion of tropical dry and very dry forests projected. There is already a high level of forest fire incidence, with reports of increasing severity and frequency of forest fire in recent decades[49]. Climate change is likely to increase the potential for forest fire in the future, particularly under drier future scenarios.

Finally, climate change will impact on the water supply and demand for Ethiopia. The World Bank economics study[50] identified potential water conflicts under climate change, affecting irrigation and in turn crop yields, as well as potentially affecting other water users.

1.5 Project Context and Problem

1.5.1. Project location and background context

Ethiopia is constitutionally formed by a federation of nine ethnically-based regional states and two chartered cities. These regions of Ethiopia are administratively divided into 68 or more zones. In turn, these zones are comprised of districts, known as woredas (also spelled weredas), and each of these in turn comprised of wards (kebele) or neighbourhood associations, which are the smallest unit of local government in Ethiopia. This project is directed at the kebele level. It will target seven highly

[48] Mamo, N. (2001). Vulnerability and adaptation of Ethiopian forests to global climate change, a report submitted to NMSA under the GEF/UNDP supported Climate Change Enabling Activities Project (ETH /97/G31) of Ethiopia.
[49] Bekele, M. 2011. Forest plantations and woodlots in Ethiopia. African Forest Forum, working paper series, Volume 1, issue 22, Nairobi, Kenya.
[50] World Bank (2010). Ethiopia - Economics of adaptation to climate change. Washington, DC: World Bank.

vulnerable woredas, and within each of these, implement the project in 2 of the most vulnerable kebeles.

Table 1. Proposed Woredas for the Project

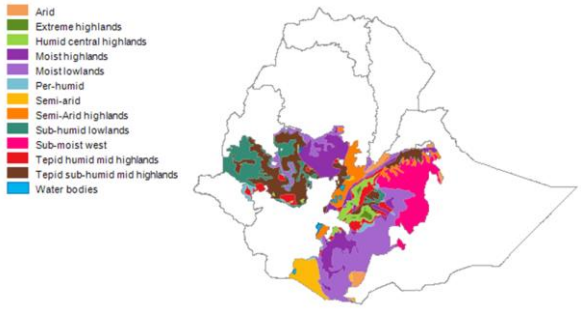
SNO	Region	Woredas selected
1	Oromia	Adama
		Alelitu
2	SNNP	Lok Abaya (Lake Abaya)
3	Harerri (Harari)	Harerri (Erer)
4	Dire Dawa	Wahil cluster
5	Tigray	Raya Azobo
6	Amhara (Amahara)	Tenta

These woredas have been selected based on their vulnerability to climate hazard (e.g. increasing variability of rainfall and increasing frequency of drought/flood), vulnerability to climate change (e.g. limited income diversification and crops) and adaptability, i.e. availability of water and physical access to markets. The target Kebeles have also been selected in close consultation with stakeholders with the Woredas, and represent diverse agro-ecological conditions, access to markets, and extent of vulnerability to drought.

In each case, the woredas (and kebeles) have also been selected because they have not been included in existing programmes of support. A relatively large number of woredas (7) has been included in the proposal to capture the different adaptation planning zones in Ethiopia, i.e. to reflect the large differences in vulnerability, and thus to be able to test integrated solutions and climate smart planning in varied areas representative of the country. This will provide critical information for learning and subsequent scale-up, i.e. on what works well in different agro-ecological zones. For this reason, the proposal has a strong focus on evaluation and learning, to ensure lessons are captured and used for scaling up and future programming.

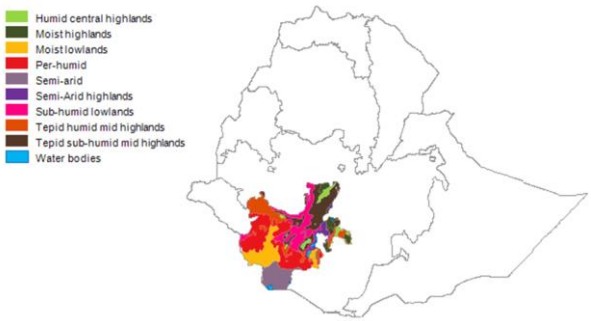
The location of the regions and an analysis of the Adaptation Planning Zones are shown below. In line with the proposed approach to capture the different risk profiles and enhance learning, they include some arid areas (notably Harerri), semi-arid areas (Dire Dawa and Tigray), and mixed areas (Oromia and SNNP and Amhara).

Figure 8. Location and Adaptation Planning Zones for these regions.



Oromia region

Characteristics: mixed area:
Sub-moist west
Sub-humid lowlands
Moist lowlands
Moist highlands
Tepid sub-humid mid highlands

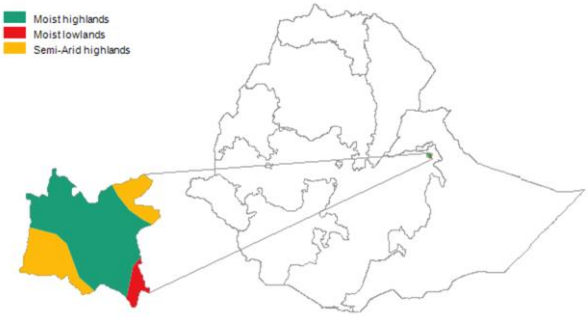


SNNPR region

Characteristics: mixed
Semi-arid
Sub-humid lowlands
Moist lowlands
Tepid sub-humid mid highlands
Tepid humid mid highlands

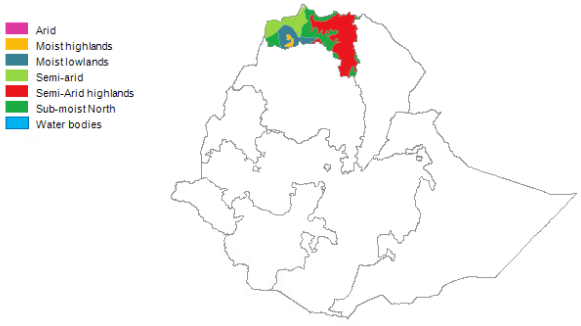
Harari region

Characteristics
predominantly Arid



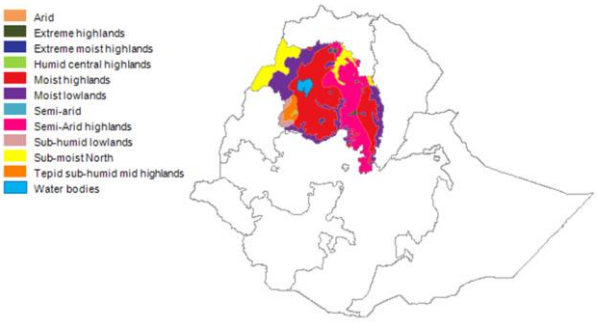
Dire Dawa

Characteristics:
Semi-arid highlands
Moist highlands



Tigray

Characteristics:
Semi-arid
Semi-arid highlands
Moist lowlands



Amhara

Characteristics
Semi-arid highlands
Sub-moist North
Moist lowlands
Moist highlands

Socio-economic information has also been gathered for the relevant regions.

Regional trends indicate that poverty reduced in the target regions; but the rate of decline of poverty varied across regions and rural–urban area. In most cases rural poverty reduction was greater than that of urban. Note that poverty is still high in all regions.

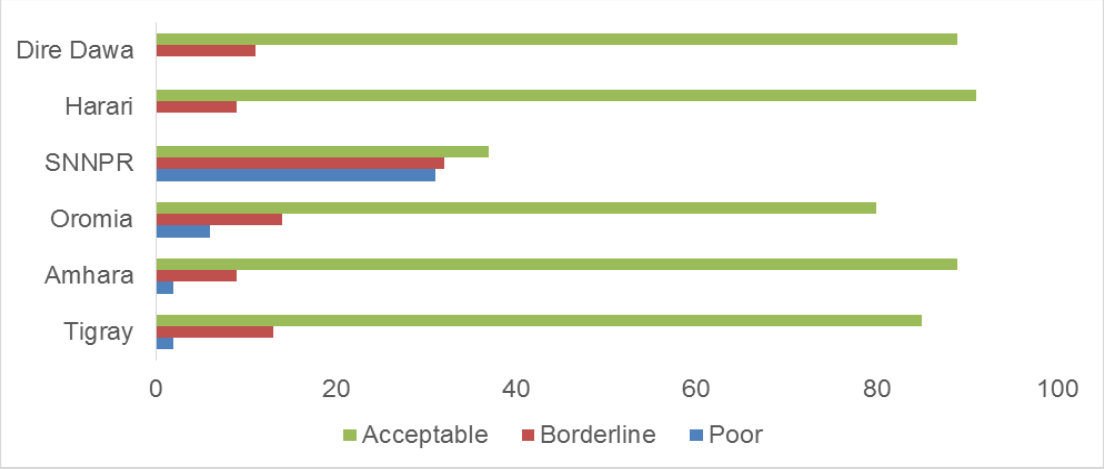
Table 2: Poverty head count indices over time across regions.

	1995/06			1999/2000			2004/05			2010/11		
Region	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Tigray	0.579	0.457	0.561	0.616	0.607	0.614	0.510	0.367	0.485	0.365	0.137	0.318
Amhara	0.567	0.373	0.543	0.429	0.311	0.418	0.404	0.378	0.401	0.307	0.292	0.305
Oromia	0.347	0.276	0.340	0.404	0.359	0.399	0.372	0.346	0.370	0.293	0.248	0.287
SNNPR	0.565	0.459	0.558	0.517	0.402	0.509	0.382	0.383	0.382	0.300	0.258	0.296
Harari	0.133	0.291	0.22	0.149	0.35	0.258	0.206	0.326	0.270	0.105	0.117	0.111
Dire Dawa	0.366	0.246	0.295	0.332	0.331	0.331	0.398	0.329	0.352	0.142	0.349	0.283

Source: MoFED (2014)

According to the Food Consumption Score, more than one in four households (27%) consumed less than acceptable diets; 10% of households had poor and 17% borderline food consumption levels.[51]

Figure 9. Proportion of households with poor, borderline and acceptable food consumption, by region.

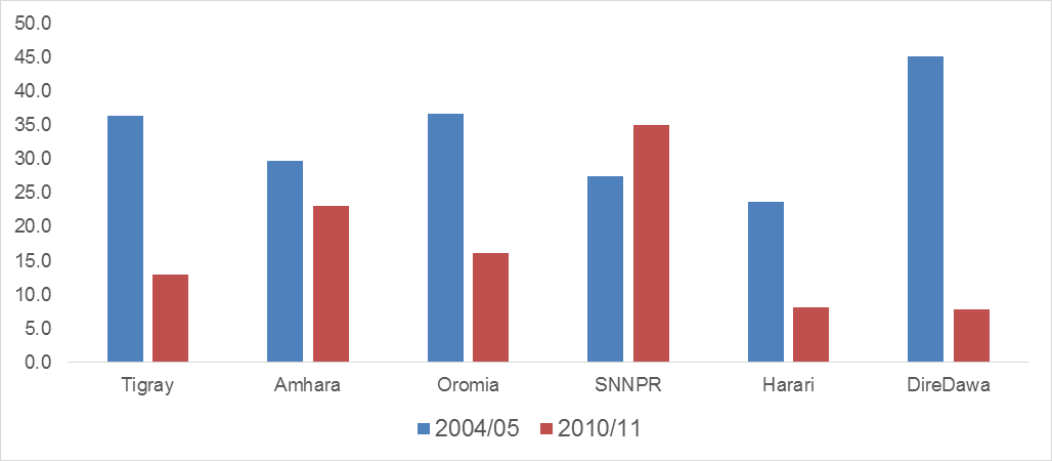


Source: CSA and WFP (2014)

[51] See CSA and WFP (2014), Ethiopia: Comprehensive food security and vulnerability analysis.

The regional distribution of food deficient households indicates that SNNP experienced an increase in the proportion of food insecure households in 2010/11[52]. On average 21.5% of households have experienced food shortage for 3.2 months of the year in 2010/11. While this is an improvement over the level of 2004/05, this is still high.

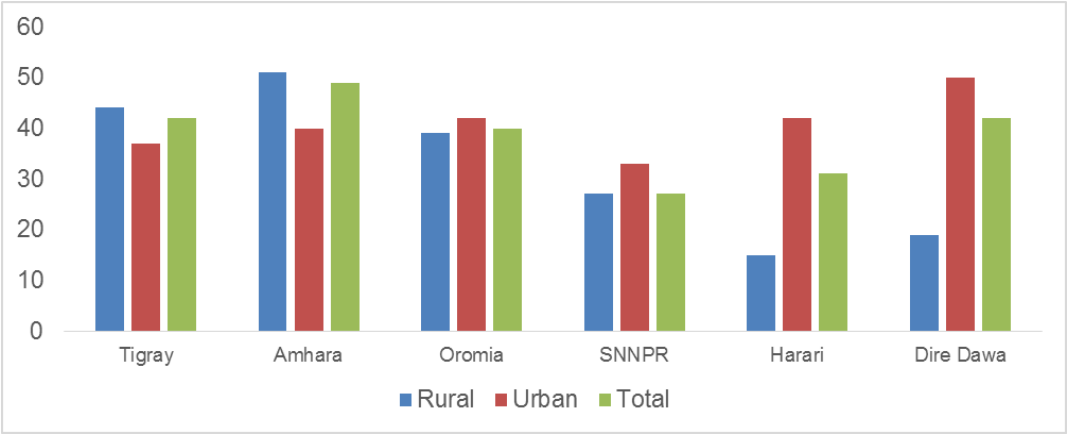
Figure 10. Percentage of households with food shortage.



Source: MoFED (2014)

In 2011, close to 40% and 42% of rural and urban households were food energy deficient, respectively. In terms of the regional distribution, the Amhara region experienced the highest food energy deficiency, followed by Tigray and Dire Dawa regions.

Figure 11. Percent of food energy deficient households (<2,550 kilocalories/adult equivalent/day) by region.



Source: CSA (2011)

[52]MoFED (2014), Development and Poverty in Ethiopia 1995/96-2010/11, Addis Ababa.

1.5.2. Vulnerability profiles for the project areas

Ethiopia has invested heavily in improving the baseline disaster risk and climate vulnerability and a national risk mapping exercise has been undertaken (the Woreda Disaster Risk Profiling (WDRP) Programme). This provides key information on risk profiles of the proposed project implementation areas. The full risk profiles for the Woredas are presented in the Annex. These include:

- Livelihood summary;
- Risk profile;
- List of major disasters;
- Accessibility data:
- Vulnerability information;
- Level of Awareness and Institutional Development;
- Community Capacity to Cope.

A summary is presented below.

Adama Woreda

Adama Woreda is located in the Oromia Region of Ethiopia, located in the Great Rift Valley. The altitude of this woreda ranges from 1500 to 2300 meters above sea level. Notable local landmarks include the Sodere and Gergedi hot springs, and Boku Femoral. A survey of the land in this woreda shows that 30% is arable or cultivable, 6.5% pasture, 5.2% forest, and the remaining 58.3% is considered swampy, degraded or otherwise unusable. Fruits, vegetables and sugar cane are important cash crops.

The 2007 national census reported a total population for this woreda of 155,349, of whom 79,013 were men and 76,336 were women. Of the total population of the Woreda, about 26,322 or 16.94% of its population were urban dwellers.

Given that the Woreda is located Rift Valley areas, the average rainfall in the Woreda is generally considered inadequate for crop production and the area is often vulnerable to recurrent drought.

Alelitu Woreda

Aleltu is one of the woredas in the Oromia Region of Ethiopia. It was part of former Berehna Aleltu woreda. It is part of the Semien Shewa Zone.

The 2007 national census reported a total population for this woreda of 53,414, of whom 27,109 were men and 26,305 were women.

The Woreda is located in the highland mixed livelihood system. Rainfed production of a wide range of highland cereals including teff and wheat and pulses using deeply entrenched, traditional crop and livestock husbandry practices under temperate climatic conditions in the highlands. Long years of extractive forms of production, high

population and livestock densities have led to advanced levels of natural resources degradation characterize the system of production.

Lok Abaya Woreda

Loka Abaya is one of the woredas in the Southern Nations, Nationalities, and Peoples' Region of Ethiopia. It is part of the Sidama Zone located in the Great Rift Valley, with total area of about 1190 km^2. The land use in this woreda shows that about 20.2% is cultivated land, and 42.6% is under forest. The total population of the district is estimated to be 116,000 people. In terms of agroecology, it can be characterized as lowland/highland, with mean annual temperature in the range of 17 to 20 degree Celsius. The altitude of this woreda ranges from 1500 to 1768 meters above sea level. Mixed farming is the main livelihood system. In particular, agriculture is the main source of livelihood for the Woreda. The main crops include both perennial crops (e.g. coffee and enset), cereals and root crops. The major agriculture and food security related challenges include degradation of natural resources, frequent droughts and increasing population.

Based on the 2007 Census conducted by the CSA, this woreda has a total population of 99,233, of whom 50,603 are men and 48,630 women; 1,059 or 1.07% of its population are urban dwellers.

Harari Woreda

Harari region includes a single woreda (population 183,000) and the project focus is on Burka and Sofi kebeles. The area is predominantly arid and thus a kola livestock zone, although it includes mixed agriculture production including crops.

The main climate stress arises from water stress, and droughts in particular, which affect health, crops and livestock, although it is sometimes affected by flooding and soil erosion. Human vector and water borne disease is an acute problem and there is also a major problem from livestock and crop pests and disease. Major climate induced disasters have been recorded over the past five years, and many households have reported damages from droughts and crop damage The risk profile highlights the need for livelihood diversification and improved water access.

It is also a food deficit area reflecting small landholdings and erratic rainfall. The effects of climate are compounded by wider stressors, including inadequate access to drinking water, shortage of pasture and water for livestock, deforestation, lack of access to infrastructure (roads and energy), a shortage of health facilities and access, and low educational attainment levels, all of which increase the vulnerability of the community. 13% of households are female-headed. Household surveys reveal a large proportion have participated in food/cash for work programmes and received food aid, and there is evidence of low recovery levels after shocks.

Wahil Woreda, Dire Dawa region

The Wahil Woreda is situated in the East and comprises of semi-arid highlands and moist highlands, an agro-pastoral livelihood zone. The main climate stress arises from moisture and water stress, and periodic failures of the rains and droughts in particular, which affect health, crops and livestock. However, flooding also occurs and there is soil erosion due to the terrain. Crop and livestock pests and disease also are a problem. Major climate induced disasters have been recorded in all kebeles over the past five years, and around two thirds of households have reported crop or livestock damage The risk profile highlights the need for improved water access, as well as soil and water conservation.

The area is a food deficit area, reflecting the low income levels (with the main source of income being agriculture), small land holdings and erratic rains. The effects of climate are compounded by wider stressors, including deforestation, inadequate access to water, poor agriculture management and information, lack of access to infrastructure (roads and energy), a shortage of health facilities and access, and low educational attainment levels, all of which increase the vulnerability of the community. 16% of households are female-headed. Household surveys reveal a large proportion have participated in food/cash for work programmes and received food aid, and there is evidence of low recovery levels after shocks.

Raya Azebo Woreda

The Raya Azebo Woreda (population 136,000) lies in the kola agro-ecology and plains, and undulating mountains dominate the terrain. It is one of the more productive of the areas considered, and produces enough food (from crops and livestock), due to fertile soils and relatively high rainfall. Nonetheless, periodic drought is a recurring problem, and there have been reports of increase in rainfall variability in all kebeles over the last decade and this has affected the livelihoods of much of the population. Flooding and soil erosion are also issues due to the terrain. Human, crop and livestock pests and disease are also a problem.

The effects of climate are compounded by wider stressors, including deforestation, low transport access, although access to agricultural extension support is reasonable. However, household surveys reveal a large proportion (55%) do not have adequate assets to cope with major shocks: and in recent droughts, many have participated in food/cash for work programmes. The risk profile highlights the main problem is around water and recommends the construction of dams, water harvesting, and development of water sources are among the major interventions required, as well as enhanced natural resource conservation activities.

Tenta Woreda

The Tenta Woreda is comprised of mixed livelihood zones (population 166,000). It includes some livestock and some crop production zones.

The main climate stress arises from droughts, which affect health, crops and livestock, although it is sometimes affected by flooding, landslides and soil erosion. Human disease is a problem and there is also a major problem from livestock and crop pests and disease. Major climate induced disasters have been recorded over the past five years, and many households have reported damages from droughts, crop and livestock disease The risk profile highlights the need for soil and water conservation as well as irrigation.

The effects of climate are compounded by wider stressors, including inadequate access to drinking water, shortage of pasture and water for livestock, deforestation, lack of access to infrastructure (roads and electricity), all of which increase the vulnerability of the community. 15% of households are female-headed. Many parts of the woreda suffer from chronic food insecurity, due to the erratic rains and small land holdings, as well as due to degreded land. Household surveys reveal participation in food/cash for work programmes and food aid.

Summary

A summary of the Woredas and Kebeles is presented below.

Table 3. Summary of Woreda Characteristics.

Woreda selected	Population	Agro-climatic / Livelihoods	Key risks
Adama	155,349	Mixed	Drought, insufficient rainfall
Alelitu	53,414	Highland mixed livelihood system	Drought, insufficient rainfall
Lok Abaya	116,000	lowland/highland mixed	Drought, insufficient rainfall
Harerri (Erer)	183,000	Predominantly Arid kola livestock zone, although mixed production	Drought, though also flooding and soil erosion
Wahil cluster		Semi-arid highlands and moist highlands agro-pastoral livelihood zone	Drought, though also flooding and soil erosion
Raya Azobo	136,000	Kola agro-ecology and plains, and undulating mountains	Drought, though also flooding and soil erosion
Tenta	166,000	Mixed	Drought, though also flooding and soil erosion

Table 4. Summary of Kebele Characteristics.

Region	Woreda	Selected kebeles
Oromia	Adama	▪ Bati Bora (HH=336 male headed; 90 female headed; Total population; M= 996, F=902; Land size=1025 ha) ▪ Bati Germama (Male headed HH=580; Female Headed=187; Total population; M=1911, F=1554) ▪ Land size (1818 ha)
	Aleltu	▪ Sadeni Segeda ▪ Tulu Fati
SNNP	Lock Abaya	▪ Desse (Population: M=1533, F=1544; Total=3075; HH=612 (Male headed=569; Female headed=43); Area=1000 ha) ▪ Sodo-Simita (Population: M=3515; F=3300; Total=6816; HH=888 (male headed=812, Female headed=76); Area=1188 ha
Harari	Sofi	▪ Burka (Population: M=2539; F=2643; Total=5182; HH=1329; Area=1806 ha ▪ Sofi kebele (Population: M=3766; F=3919; Total=7685; HH=1971; Area=1342 ha
Dirdawa	Wayil Kilaster	▪ Wahil (population: 5,835 persons or 1269 hhs) ▪ Legeodagudunfet (populatioin: 7253; 1543)
Tigray	Raya Azebo	▪ Hawelt (7840 ha; population: 12439 persons ▪ Mechare (15600 ha; 11,011 persons)
Amhara	Tenta	▪ 03 Abamella (Population: M=2103; F=2024; Total=4127 Area=7543.75ha ▪ 09 Tena Population; M=1879; F=1858; Total 3737; Area=3616.5 ha)

Project / Programme Objectives:

List the main objectives of the project/programme.

2. Project Objectives

The objective of the project is to manage the risks from recurring droughts, floods, landslides and erosion – both from current risks and under future climate change - through an integrated water, agriculture and natural resource management approach. This is complemented with a climate resilient livelihoods diversification programme. The programme is targeted in climate sensitive and vulnerable areas of Ethiopia.

This objective is aligned with the Results Framework of the Adaptation Fund and directly contributes to:

Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses

Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level

Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress

Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.

The project has a number of aims, which are strongly inter-related, and will be introduced in an integrated approach.

The project first aims to develop climate resilient integrated water management, using green technologies to enhance water availability, coupled with improved water use to ensure longer-term resilience. This will address the problem of climate (rainfall) variability and help address the major risks from extremes, notably droughts.

It is also looking to reduce vulnerability of highly climate affected communities and following the national CRGE strategy, this proposal will contribute to the national effort of developing a climate resilient, green economy livelihood diversification. This will reduce the risks of climate extremes (and the asset losses, food insecurity, etc. that these lead to) but also provide enhanced income, centring on activities that enhance climate resilience and low carbon growth.

Alongside these interventions, there is component on climate smart agricultural portfolios centred on the land-water-forest integration. This involves climate smart practices at the farm level, which will enhance soil and water conservation, increase environmental benefits and reduce greenhouse gas emissions. It also involves

integrated watershed management using afforest/land rehabilitation at the community level. This provides large benefits through various ecosystem services, including watershed management improvements, enhanced biodiversity and environmental quality, reduced emissions, and additional income streams. The project has a strong element of learning, expanding the monitoring and evaluation components to provide capacity building at various levels, and to move towards local climate smart planning.

Finally, the interventions proposed within this proposal are aligned to the Intended Nationally Determined Contribution (INDC) and the focus for increasing resilience and reducing vulnerability of livelihoods and landscapes for drought; floods and other cross-cutting interventions. Indeed, the activities included in this proposal are specifically listed in Ethiopia's INDC.

In this regard, the proposed project will provide key information for the subsequently scale-up for Ethiopia's medium to long-term adaptation objectives. Lessons learned and best practices from program implementation in the different agro-zones will be used to learn and then scale-up in other areas

Overall the project will increase climate resilience through local level adaptation, while aligning and contributing to the implementation of national policies and programmes in line with the national CRGE strategy.

The project duration will be 3 years.

Project / Programme Components and Financing:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

The five components of the project are outlined below:

Component 1: Climate smart resilient project design and plans;

Component 2: Climate resilient integrated water resource use;

Component 3. Climate smart agriculture – land – water - forest integration;

Component 4 Resilient livelihood diversification;

Component 5. Capacity building, monitoring, evaluation and learning.

The project components relate to the main Outcomes and the Outputs identified to achieve them (see table below). The proposed Outcomes contribute to the overall objective, while the Outputs are the deliverables of the project produced by its proposed activities.

Table 5. Outputs and outcomes.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
1. Climate smart resilient project design and plans	Output 1.1. Awareness of IEs enhanced at all levels for effective implementation Output 1.2: Climate smart development plan designed Output 1.3: Climate resilient water planning Output 1.4. Climate smart agriculture and land – water - forest integration planning Output 1.5: Climate resilient livelihood planning	Climate smart development plans are designed and implemented at the local level.	360,910
2. Climate resilient integrated water resource use	Output 2.1. Potable water supply increased in the project areas Output 2.2: Irrigation for agriculture designed and developed	Improved potable water supply services and agricultural productivity, with enhanced adaptive capacity of the local community.	4,876,667
3. Climate smart agriculture – land – water - forest integration	Output 3.1: Climate smart agriculture implemented at farm level Output 3.2. Integrated watershed management	Enhanced agricultural resilience and improved productivity. Rehabilitated ecosystems enhancing resilience.	734,681
4. Resilient livelihood diversification	Output 4.1: Climate resilient livelihood diversification	Livelihoods of local communities is diversified with improved market access.	490,603
5. Capacity building, monitoring, evaluation and learning	5.1. Building capacity and knowledge transfer 5.2: Monitoring, evaluation and learning 5.3: Communication of results and lessons	Enhanced capacity of local actors and Government to develop and implement resilience strategies. Knowledge transferred and lessons learnt.	2,545,778
6. Project/Programme Execution cost			465,405 (5.2%)
7. Total Project/Programme Cost			9,474,043
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			501,443 (5.3%)
Amount of Financing Requested			9,975,486

Projected Calendar:

Indicate the dates of the following milestones for the proposed project/programme

Milestones	Expected Dates
Start of Project/Programme Implementation	01/01/2017
Mid-term Review (if planned)	01/06/2018
Project/Programme Closing (6 months after completion)	01/06/2020
Terminal Evaluation	31/12/2019

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

The project incorporates on a number of key concepts and innovations, derived from the latest thinking in the literature on adaptation[53]. First it targets low regret adaptation options that address the impacts of current climate variability and build resilience to future climate change. Second, it adopts an iterative climate risk management framework, as recommended in the IPCC WGII report[54]. This leads to a focus on portfolios of options, i.e. on combining options to deliver higher effectiveness and efficiency, combined with a strong monitoring and learning component to improve future decisions as well as providing benefits today. Third, it advances the concepts of mainstreaming, looking at the existing local plans and considers how climate smart planning could be integrated into these to build resilience.

The project is structured around five innovative components that combine to deliver these objectives:

- Component 1: Climate smart resilient project design and plans;
- Component 2: Climate resilient integrated water resource use;
- Component 3. Climate smart agriculture – land – water - forest integration;
- Component 4 Resilient livelihood diversification;
- Component 5: Capacity building, monitoring, evaluation and learning.

These components will be applied in each of the project locations, but with a strong initial element to bring together this information as part of an integrated assessment. This is complemented with a strong focus on learning throughout the project, to take the lessons from the information produced from the project across the sites.

A description of the options is included below. The rationale for the choice of these options (the prioritisation) is set out in section C. They are also based on the results of the stakeholder consultation with the project communities.

[53] Watkiss and Cimato (2016). The economics of adaptation and climate-resilient development: lessons from projects for key adaptation challenges. Working Paper from London School of Economics. http://www.lse.ac.uk/GranthamInstitute/publication/the-economics-of-adaptation-and-climate-resilient-development-lessons-from-projects-for-key-adaptation-challenges/

[54] IPCC (Intergovernmental Panel on Climate Change) (2014), Climate Change 2014: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge and New York.

Component 1: Climate smart resilient project design and plans

Historically, climate relevant projects have typically been implemented as stand-alone projects at the local level in Ethiopia, and have had a strong sector orientation, e.g. a water project, a soil conservation project, etc. While this has implemented interventions on the ground, there has been a lack of integration across the land, water, energy and livelihood areas, which misses the opportunities for important synergies and fails to capture key trade-offs.

The focus on stand-alone projects is also separate from the existing development agenda and the woreda level planning process. This has meant that opportunities to build resilience into existing plans and activities, i.e. climate smart planning, have not been fully realized. This project aims to address both these issues through the use of integrated climate smart planning, with multi-sectoral approaches, which are grounded in local community development plans and views. The project also adopts the use of community development officers ('community animators') to embed the project within the local community, i.e. within each Kebele. To advance this, a series of activities are proposed that build the integrated planning approach.

The project starts with an initial phase of climate smart planning, effectively the finalisation of the design and feasibility activities. These would take place during the first 3 – 4 months of the project and would embed the project within local development plans and governance, deliver the integrated approach across the team and co-develop the final activities with the local communities.

Output 1.1: Awareness of IEs enhanced at all levels for effective implementation

The project involves a greater degree of collaboration than typical projects, thus it is important to start the project with an orientation session to advance the project objectives. It is also important for the project to have a common set of information that is shared across the project areas, to enhance consistency and efficiency. The project will therefore start with a series of orientation activities.

- Activity 1.1.1. National level meeting between CRGE facility and PMU, the four implementing Ministries, the Regions and the technical team;
- Activity 1.1.2. Meeting /consultation with PMU, the Regions, Woreda and Kebele representatives, and local Ministry representatives;
- Activity 1.1.3. National desk based study.

This taks will ensure all actors have a common understanding of the study. The national desk based study will ensure all teams are working with a common set of data, collecting meteorological data (temperature and precipitation) for the relevant project sites and collating future climate projections for Ethiopia, capturing uncertainty through the analysis of multi-model ensemble data.

Output 1.2: Climate smart development plan designed

There is also a need to build climate resilience into local development planning, and this is particularly important given the localised nature of climate risks and vulnerability. A focus only on a national, sector and regional planning would omit some of the most vulnerable groups, and also not fully capture the preferences or responses of affected communities.

Related to this, a key issue of the recent focus on climate mainstreaming is to look to embed climate smart (or resilience) activities within existing plans and policies. At the national level, the Government of Ethiopia has mainstreamed the CRGE strategy in its second five year Growth and Transformation Plan (GTP-II). At the regional level, Ethiopia is mainstreaming through the CRGE initiative and the plans of the regions. In light of this, the proposal is aligned with the existing national development plan in the context of adaptation.

However, there are also local development plans (Woreda level plans) in Ethiopia although mainstreaming of CRGE strategy has not yet been advanced due to limited capacity. A key innovation of this project is to investigate how to translate national CRGE plans and mainstreaming into local development planning. This activity therefore will compile the information and look for opportunities for integrated climate planning and seek to make existing Woreda plans climate smart and aligned with the national GTP II targets. Working with each of the 7 woredas of the project, this activity will look to advance integrated planning. The study would include the following activities:

- Activity 1.2.1. Undertake review of existing local development plans in view of climate smart development;
- Activity 1.2.2. Develop locally appropriate climate climate mainstreaming framework (tools, methodologies and guideline);
- Activity 1.2.3 Conduct consultation with the Regions, woredas and communities on climate smart planning;

Following this, the study will focus down on developing integrated plans in the key project component areas 4).

Output 1.3: Climate resilient water planning

These activities will also include more detailed planning in specific areas. The first of these will be to develop climate resilient planning for water management. This will adopt an integrated climate-smart water planning approach, which will include some local analysis in each of the Kabeles (i.e. for each of the 14 project sites). The study would include the following activities:

- Activity 1.3.1. Collect regional and local watershed information for the relevant project areas. This will include. hydro- meteorological data, groundwater information (using the hydrological and feasibility study to provide an indicative analysis of water availability (supply-side) ;

- Activity 1.3.2. Estimate current water demand (household level and for other users) and future for the relevant project area, considering existing plans. A gender based analysis of estimates will be crucial given women's responsibility for collecting water;
- Activity 1.3.3. Undertake a scoping assessment on the potential influence of climate change on future water demand;
- Activity 1.3.4. Provide an indicative water balance (supply-demand) in each Kebele with consideration of current and future risks.
- Activity 1.3.5. Develop an integrated water - agriculture-land-ecosystem and livelihood diversification plans with the communities;

These activities will feed into the geophysical studies to determine site characteristics (see component 2). These activities will help to build climate resilience, by augmenting the usual hydrological studies with a targeted climate change orientated assessment. It will also be linked to awareness raising, monitoring and learning components – outlined later – to ensure this approach is developed and implemented with the local community, and that sufficient learning elements are put in place to ensure the results of activities can help inform future planning.

Output 1.4. Climate smart agriculture and land – water - forest integration planning

The project will develop climate resilient planning for integrated agricultural development, with a focus on climate smart agriculture and integrated land-water-ecosystem management. The main activities would include:

- Activity 1.4.1; Collate information on agricultural production, management systems and practices in the project areas;
- Activity 1.4.2 Undertake survey and analysis of local soil and water conditions and environmental degradation;
- Activity 1.4.3 Assess the potential portfolio of options for each relevant adaptation-planning zone, considering elevation, precipitation and soil suitability;
- Activity 1.4,4 Develop locally appropriate tools and methodologies to support uptake of climate smart agriculture and watershed rehabilitation.

The outputs of this task will subsequently feed into the studies for implementation (see component 3).

Output 1.5: Climate resilient livelihood planning

The project will develop livelihood diversification, supporting a transition from highly vulnerable existing livelihoods towards alternatives that are climate resilient (and also low carbon, in line with national CRGE objectives). This will include:

- Activity 1.5.1. Collate existing socio economic data for the project area and conduct vulnerability assessment of the community, including gender disaggregated analysis;
- Activity 1.5.2. Conduct consultation with the local community to understand the available livelihood options and foster innovative adaptive practices;

- Activity 1.5.3 Sensitize the community and discuss current climate variability and future climate change risks to better understand vulnerability;
- Activity 1.5.4 Identify appropriate options and develop a comprehensive livelihood diversification plan for the project area.

The outputs of this task will subsequently feed into the studies for implementation (see component 4).

Component 2: Climate resilient integrated water resource use

This component is designed to enhance climate smart integrated water management, providing a reliable source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, but doing so in a way that introduces green technologies and ensures long-term climate resilience, i.e. consistent with Ethiopia's national CRGE strategy and INDC which seeks to build resilience and at the same time reduce GHG emissions.

Output 2.1. Potable water supply increased in the project areas

In all of the Kebeles selected, the majority of the population accesses drinking water from ponds and rivers, and thus almost all households use water without any treatment. Collection of water is usually assigned to children, especially girls, and this reduces schooling as it usually takes three to four hours each day. Furthermore, the existing water supplies are often sources of water borne disease. Rainfall variability – and the potential increase from climate change – exexcerbates these impacts by drying up local water sources, often forcing families to rely on sources further away or to access contaminated water sources. Al of the target Kebeles experience periodic droughts, and water supply is a critical issue during these times.

This activity therefore seeks to enhance potable water from supply sources that are resilient to current climate shocks and future climate change trends. The proposal is for a climate resilient and green potable well to be delivered in each of the 14 Kebeles. The activities include:

- Activity 2.1.1. Conduct hydrogeological and geophysical studies and provide support in terms of appropriate satellite imagery analysis in the project areas;
- Activity 2.1.2. Prepare design and tender document with hydrogeological assessment, design all works and yield tests, drawings, Bill of Quantities, Specifications, Conditions of Contract and all other required documentation prepared;
- Activity 2.1.3. Drill shallow wells
- Activity 2.1.4. Construct elevate water reservoir and water point ;
- Activity 2.1.5. Complete set of solar powered submersible water pump systems, Solar PVs, including all electro-mechanical works procured; and
- Activity 2.1.6. Install pump and electro-mechanical fixtures;

There are also two further related activities here, which are presented in component 5. First, to install ground water monitoring equipment and second, to introduce awareness raising on efficient water use (reuse, recycling and rationing so that supplies are able to withstand fluctuations in recharge).

Output 2.2: Irrigation for agriculture designed and developed

The communities within the kebeles targeted are all dependent on rain-fed susbsistence agriculture for their livelihoods and are highly vulnerable to climate change. Following from 1.2 above, all of the target Woredas selected suffer from periodic droughts, and this affects crop production, livestock and food security, and often results in the sale of key assets (notably livestock), which reduces longer-term income. There is therefore a need for a multi-purpose approach for providing water for irrigation, mixed use and pastoral areas. The Climate Resilient (CR) strategy for Water and Energy has outlined accelerated irrigation plans using off-grid energy as one of eleven strategic priorities. This activity therefore seeks to provide water to enhance resilience to climate shocks. The proposal is for a well to be delivered in each of the 14 Kebeles where surface water is not available. The activities involved include:

- Activity 2.2.1. Prepare detailed design and tender document including, construction of hand-dug wells, shallow wells, check dams (sand dams), canals and irrigation systems;
- Activity 2.2.2. Construct hand dug wells or check dams (water harvesting for rivers);
- Activity 2.2.3. Install hand pumps;
- Activity 2.2.4. Upgrade traditional irrigation schemes for hand dug wells;
- Activity 2.2.5. Complete sets of solar powered surface water pump systems, Solar PVs, including all electro-mechanical works;
- Activity 2.2.6. Construct sand dams ;
- Activity 2.2.7 Construct Irrigation canals;
- Activity 2.2.8 Install pump and electro-mechanical fixtures;
- Activity 2.2.9. Install systems procured.

Component 3. Climate smart agriculture – land – water - forest integration

This component focuses on climate smart agriculture, as a low regret adaptation option that helps reduce current climate vulnerability and builds resilience to future climate change. A key innovation, however, is the introduction of CSA from the perspective of land-water-forest integrated solutions. This component thus focuses on managing the watershed through physical and biological interventions such as bunds, trenches, terraces and afforestation and reforestation practices. By doing so, the component supports the sustainability of agricultural practices (soil and water), controls runoff, reduces environmental degradation, and creates an enabling environment for soil, nutrient recycling, organic matter and water retention in the target Woredas. It also targets afforestation/reforestation, aligning to the national CRGE strategy and the priority in this area. This includes planting diversified native trees in marginal lands, establishing shelter belts (native tree species, etc.), patches

of forests (in unproductive lands), rehabilitation of degraded land and prevention of sheet erosion, micro-basin, trenches and inter farm ponds

Output 3.1: Climate smart agriculture implemented at farm level

All of the Woredas in the proposed project have reported high agriculture losses in recent years, as a result of climate variability and shocks, and in many cases this has necessitated humanitarian responses due to food insecurity. Addressing the risks of current and future climate change to agriculture is therefore critical in enhancing resilience. A key focus of the CRGE Strategy, which is also include within the INDC is to do this through the application of soil and water conservation – a major component of climate smart agriculture. There are a set of options at the farm level that can improve soil water infiltration and holding capacity, as well as nutrient supply and soil biodiversity. This reduces current risks from rainfall variability and soil erosion, increases soil organic matter and soil fertility, increasing productivity, and reduces greenhouse gas emissions. The activities include:

- Activity 3.1.1. Construct physical moisture and soil conservation structures;
- Activity 3.1.2. Build biological conservation measures (e.g. grass strips, hedges, planting of physical measures);
- Activity 3.1.3. Treat farmland gully ;
- Activity 3.1.4. Introduce and enhance agroforestry scattered trees on farmlands (Faihderbia, Croton, etc.) and introduce homestead multi-storey agro-forestry and soil conservation measures;
- Activity 3.1.5. Establish wind breaks/shelter belts and farm boundaries.

There is also a set of capacity building measures for this component, detailed in component 5.

Output 3.2. Integrated watershed management

While tackling climate risks at the farm level is important, it is also important to consider the adaptation response from a community and watershed level. This recognizes that implementing options at the farm level alone will often not be sufficient to build the necessary resilience. Indeed, it is often the case that degradation of watersheds and deforestation actually increases the risks at farm level and thus an integrated approach that seeks to implement climate smart activities at the community level is needed. This activity implements such measures, including:

- Activity 3.2.1. Undertake upper watershed treated with soil and water conservation measures;
- Activity 3.2.2. Implement physical and biological soil and water conservation (SWC) measures;
- Activity 3.2.3. Implement rangeland management practices in pastoral watersheds area ;
- Activity 3.2.4. Undertake area closures for enhanced natural regeneration;
- Activity 3.2.5. Undertake upper watershed gully treatment ed;
- Activity 3.2.6. Establish new or upgrade existing, nurseries seed, produce seedlings, and plant;

- Activity 3.2.7. Afforest/reforest degrade forestland;
- Activity 3.2.8. Purchase and produce seedling tree and grass seeds;
- Activity 3.2.9. Establish community based systems for grazing land, efficient feed conservation management systems and practicing stall-feeding.

There are also important capacity building activites for this component, discussed in component 5.

Component 4 Resilient livelihood diversification

As identified in the risk profiles, all of the target Woredas are vulnerable to climate shocks, and in most cases, three-quarters of households have experienced major impacts over the past five years. This is compounded by the low resilience of households, in terms of their ability to withstand and subsequently bounce back after these events. These pressures are likely to increase under the changing climate and this component seeks to help communities that have high climate vulnerability to diversify their current production methods and indeed their overall livelihoods. A key innovation is that this diversification is targeted towards activities that are consistent with climate resilient (but also green economy) activities, so they align with the priorities identified in the national CRGE strategy, and link bottom-up community diversification with national policy. In looking at these diversification strategies, a key innovation will be to take a value chain approach, to ensure investment in production is complemented with efforts to ensure access to markets etc.

Output 4.1: Climate resilient livelihood diversification

The CRGE strategy identified the high climate vulnerability (droughts) and high GHG emissions from the existing reliance on cattle, and recommended a strategy towards poultry as more resilient. The Climate Resilient (CR) Strategy for Agriculture also identified the potential for greater resilience through diversification into other agricultural products (e.g. land fruits and vegetables), as well as goats and sheep, for strengthening resilience. The role of beekeeping was also identified in both strategies as a critical activity for ecosystem based livelihoods: in this case around forests. These components are included for all Kebeles, though the mix of diversification strategies will be chosen based on the study feasibility results. The focus is not on grants but on the facilitation of alternative livelihood activities, and increasing access to existing local micro-finance institutions. Complementing these activities, a study will be carried out (nationally with consideration of the Woredas involved) to to provide support for market systems value chain) development. Activities include:

- Activity 4.1.1. Purchase and adopt lowland fruits t and promote vegetable productions;
- Activity 4.1.2 Provide Relevant fruit management tools;
- Activity 4.1.3. Facilitate forage seed supplies;
- Activity 4.1.4. Promote small chicken-egg hatcheries.

- Activity 4.1.5. Facilitate access to credit to support purchase and dissemination of hatchery units, modern farm beehives, seed of bee flora, veil, glove, smoker, boots, brush, chisel and sprayer for beekeepers
- Activity 4.1.6. Introduce improve varieties of sheep and goat and along with s distribution of imported (more resilient) sheep and goat breeds;
- Activity 4.1.7. Conduct market assessment and value chain analysis along with facilitating better access to market information;
- Activity 4.1.8. Facilitate collective and individual access to financial and support services, with attention to gender equality,
- Activity 4.1.9. Facilitating better access to market information and develop interventions to address market failures

Component 5. Capacity building, monitoring, evaluation and learning

This component will focus on capacity building, and implementing the monitoring and evaluation components. A particularly innovative additional element will be to add an explicit learning component to the project. Finally, it will bring together the lessons from the overall project and communicate these. There are four main activities:

- Capacity building and knowledge transfer
- M&E including Iterative learning (adaptive management);
- Communication and outreach;

Output 5.1. Building capacity and knowledge transfer

A critical factor in the success of the project will be the local ownership, which will be enhanced by capacity buiding and knowledge transfer. This component therefore undertakes a series of activities to ensure the effectiveness, efficiency and sustainability of the components above. It also has strong linkages with component 1, with support to communities to better understand climate risks and develop adaptation strategies. Activites will include:

- Activity 5.1.1. provide training on operation and maintenance of Solar PVs and hand pumps at the community and Woreda level;
- Activity 5.1.2 Provide training for local planners and community representatives on the integrated community plan designed;
- Activity 5.1.3 Conduct training at the community and Woreda level on implementing the climate smart development plan designed;
- Activity 5.1.4 Conduct training at the federal and regional level on data extraction and re-programming of ground water monitoring devices;
- Activity 5.1.5 Create skills at the community level on the projects focusing on livelihood diversification initiatives;
- Activity 5.1.6 create awareness on the results framework of the adaptation programme, the CRGE facility M&E system as well as safeguards frame work, and operations manual, and
- Activity 5.1.7 Enhance institutional capacity at various levels in terms of logistics and office furniture and equipment.

Output 5.2: Monitoring, evaluatin and learning

Monitoring and evaluation (M&E) of climate change adaptation faces a number of challenges, due to the influence of baseline climate variability, other underlying factors (growth, other drivers) and behavioural and cognitive factors. These challenges have been considered in designing the programme's M&E methodology.The monitoring and reporting system of the proposed project will follow guidance from the AF, ensuring that the project maintains a simple and interactive monitoring system allowing for regular reporting and learning at all levels. It is expected that it will be based on the following core activities.

The overall M&E activities for the project will be managed by the PMU in the CRGE facility, with a dedicated staff member on M&E. The activities include:

- Activity 5.2.1. Develop baselines for the project;
- Activity 5.2.2. Document regular progress reports and results
- Activity 5.2.3. Undertake annual Performance Assessment or review workshops;
- Activity 5.2.4. Organize Joint Monitoring Missions;
- Activity 5.2.5. Conduct Mid-term and End of Project Evaluation and;
- Activity 5.2.6. Conducted annual financial Audits.

However, an additional feature of this proposal is the adoption of an iterative climate risk management approach, extending from M&E to MEL (monitoring, evaluation and learning) by including defined components for learning, over and above M&E activities. These are designed to provide information to improve future decisions (and scale-up of activities) as part of an iterative adaptation pathway.

This includes a strong focus on enhanced physical monitoring of climate risks and trends, which is considered alongside the project M&E and performance above. It also seeks to provide information that will inform future planning and decisions (adaptive management).

The project therefore includes a number of explicit learning components to maximise the lessons from the study.

The activities include:

- Activity 5.2.7. Analysis of meteorological station data and satellite data for the period of the study for the relevant sites to build up climate risk parameters and trends;
- Activity 5.2.8. Ground water monitoring devices will be inserted in one well per each kebele targeted for this project. The data that will be captured from the devices will be used for analystical and research purposes to understand the ground water – climate linkages and provide information for future scale-up
- Activity 5.2.9. Analysis of the outcomes of the climate smart agriculture pilots (productivity) against the climate information, with analysis of the resilience of the measures and also their performance across years (variability);

- Activity 5.2.10. Performance of the resilient livelihoods against annual climate variability.

A key issue here will be to look at the specific weather and climate information for the different Kebeles and look how this compares to effectiveness of the components, e.g. to identify the differences in performance of water measures, variation in the performance of climate smart agriculture, and the variations in resilient livelihoods. This will allow a mapping of the agro-climatic suitability of different components in the project, which will be critical in learning what works best in each type of area, for the key climate risks.

The data gathered will be used by decision makers for planning and monitoring purposes on the effective use of the natural resource to enhance adaptive management at the Woreda and regional level. The information will be fed back to the project learning events. It will also be used to help inform subsequent Woreda level planning, ensuring the lessons from the programme is fed into the next planning period.

Output 5.3: Communication of results and lessons

The final activity relates to the communication and outreach from the project.

The activities will include:

- Activity 5.3.1.Develop a communication strategy and knowledge management strategy.
- Activity 5.3.2. Periodic update of the CRGE Registry website on project status.
- Activity 5.3.3. Conduct awareness and education campaigns using a variety of communication tools (participatory videos, learning platforms, posters, media, training and workshops/seminars, business roundtables);
- Activity 5.3.4. Organize workshops and learning events (mid term and final)
- Activity 5.3.5. Synthesize, prepare, document and disseminate communication and knowledge materials, examples will include case studies and policy briefs:

These activities will be promoted by the CRGE facility and its communication section.

B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The project will provide increased resilience and enhanced livelihoods of highly vulnerable people and communities, and improved health and well-being, food and water security, and enhanced ecosystems and ecosystem services.

The main beneficiaries of the project are the 65360individuals located in the 7 woredas where project interventions take place. The Project is designed to target the most vulnerable communities.

The introduction of climate resilient integrated water management will have major environmental and social, through the access to clean potable water for communities, reducing health impacts directly (clean water). The provision of irrigation supplies will enhance agriculture productivity and local incomes, thus providing high economic benefits, as well as greater food security/health. The reduced risk of extreme events, notably droughts, will provide health, social and economic benefits.

The introduction of climate resilient and green livelihood diversification provides high economic benefits (income), but because of the shift to more sustainable activities, it also provides high environmental benefits, as well as reducing greenhouse gas emissions. It will increase the food and nutrition security of the most vulnerable, increasing the production and productivity of food and promote additional food sources (horticultural produces, poultry food and dairy products) that are rich in nutrition, as well as sources of income.

The introduction of climate smart agricultural portfolios at the farm level improve soil water infiltration and holding capacity, as well as nutrient supply and soil biodiversity. They thus have large environmental benefits. These reduce current climate related risks from rainfall variability and soil erosion, increase soil organic matter and soil fertility, increasing productivity, and reduce emissions by reducing soil emissions or preventing more emission intensive activities. These contrast with more traditional measures to increase productivity, such as fertiliser use or increased irrigation, which lead to environmental impacts (externalities). These climate smart options are win-win for food security (economic benefits), as well as providing mitigation (reduced GHG) benefits.

The focus on integrated water management at community and watershed level, with afforestation and land rehabilitation will provide ecosystem service benefits, notably through their role in watershed management, helping to reduce run-off, flooding and soil erosion, regulating water flow and reducing siltation. They obviously have major

environmental benefits including from carbon sequestration and reduced greenhouse gas emissions. These have economic as well as environmental benefits, the latter including biodiversity benefits. They also provide additional livelihood income streams through the provision of wood, fuel-wood and non-timber forest products (NTFPs) helping to enhance household total cash income. Many communities also use forests as a form of adaptation during climate stress such as droughts, due the income diversification and food.

Gender

There are also important **gender** inequalities in the current agricultural system, which need to be taken into account given the important role of women in agriculture, and conversely the importance of agriculture to women: as an example, in the drylands, women obtain a large share of their income from livestock. Women are more vulnerable to climate change impacts because they have less financial resources, lack alternative income opportunities and because they depend more directly on primary natural resources: the mortality rates from natural climatic hazards for women are higher than for men. Recognizing and addressing these gender issues is a key area for tackling broader vulnerability, and important in building resilience, especially as research[55] indicates that female-headed households are more likely to take up adaptation options.

The government of Ethiopia has developed gender sensitive policies by passing several national laws concerning women's land ownership rights, labour, education, and marriage. In 1993, the government adopted the National Policy on Women, otherwise known as the Women's Policy, to encourage "gender-sensitive" public policies and interventions across government ministries. The following year, the drafting of a new constitution laid out women's equality as a right under the law. Article 25 of the new Constitution "guarantees all persons equality before the law and prohibits any discrimination on grounds of gender." Article 35 deals exclusively with the rights of women and addresses several areas such as affirmative action, customary practices, and property rights, among others.

The project interventions contribute to narrowing gender inequality by improving opportunities for women to participate in planning, implementation, monitoring and evaluation of the project with clearly identified gender sensitive indicators, building the resilience of female-headed households and women in male headed households; and alleviating conditions that have adverse consequences on the health and safety of women in the project area. It also recognises that women are not only victims of climate change but have a strong body of knowledge and lived expertise that can be tapped in planning for climate change adaptation and mitigation strategies.

[55] Nhemachena, C. and Hassan, R., 2007. Micro-Level Analysis of Farmers ' Adaptation to Climate Change in Southern Africa. IFPRI Discussion Paper 00714, (August).

The proposal has also considered the potential gender inequality risks and assessed measures to mitigate against these

The project has considered the risks of gender inequality and introduce mitigation actions, presented in the table.

Risk	Level	Mitigation
• Socially accepted cultural beliefs, norms and attitudes that define women as subordinate to men undermine a woman's right to access credit, income generating activities, new technology and limited women's productivity. • Women are usually considered as victims of climate change instead of being agents for climate change adaptation interventions. • Decisions about natural resource management are frequently community led but women's lack of assertiveness, their under-representation in community leadership and reluctance to publically voice their views means that their issues and concerns may not be considered. • Illiteracy and low levels of education prevent women from accessing and using facilities such as extension services and inputs but it also hinders their participation in community forums and group leadership. Participation in extension service is higher among female-headed households but married women, young women and youths are mostly omitted.. • The knowledge and skills to generate sex-disaggregated data , conduct gender mainstreaming and gender budgeting are not widespread across all vertical and horizontal implementation entities. • Most data on women focuses on female-headed households who represent only 26 per cent of all households in Ethiopia; married women who are farmers/ pastorlaist are entirely overlooked with the result that little is known about their roles, participation in household and collective decision-making or access to resources and services.	Medium	• Changes to discriminatory attitudes, customs and beliefs can be achieved through training which involves both women and men. • Reinforce the gender responsive planning, budgeting and monitoring mechanisms. • Provide training for women to improve their adaptive capacity. • Women farmers are not a homogenous entity and need to be considered according to household composition, livelihood type and age as well as other critical socio-economic variables. • Provide rolling funds to improve women's access to credit and enhance their productivity. • Involving women in Kebele committees including water committee and inclusion of the elderly, physically disabled and chronically ill. • Review project implementation manuals and/or rules for committees in natural resource management to institute 50/50 female and male membership. • Promote establishment of community child-care facilities to assist women with child-care responsibilities.

The project will decrease social inequality by improving the wealth and income of the most vulnerable, mostly the poor and women. As an example, it will reduce the need for women travelling long distances for fetching water and collecting fuel-wood. Increases in household income and improved access to water sources will also result in improved access to education particularly for girls and children.

The description of how the project / programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund, is set out in section E.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

The project has been designed to maximise the benefits to beneficiaries, identifying the most cost-effective options for the anticipated risks.

The project interventions have been prioritised using an approach that has considered the cost-effectiveness and cost-benefit analysis (including wider economic, social and environmental consequences) of options. A number of principles haves been adopted in this approach, which is centred on recent literature.

Low regret options. The analysis focuses on low-regret adaptation options[56] that address the impacts of current climate variability and build resilience to future climate change. These interventions were recommended as a priority for early adaptation in the IPCC 5th Assessment Report.

Non-technical and community based adaptation. There is a strong focus on including non-technical (soft) as well as technical (hard) adaptation options. This reflects recent thinking[57] that has identified a shift away from infrastructure based hard resilience to preparedness and systemic interventions, with a much greater focus on soft resilience. Community based interventions are also highlighted in studies that analyse costs and benefits of current and future adaptation to current variability and natural weather disasters in developing countries[58] and have been found to be cost-effective than hard measures.

Iterative risk management. This identified the timing and sequencing of adaptation, building pathways that capture the transition from current climate variability to future

[56] DFID (UK Department for International Development) (2014), Early Value-for-Money Adaptation: Delivering VfM Adaptation using Iterative Frameworks and Low-Regret Options, DFID, London. Available at www.vfmadaptation.com
[57] Mechler, R (2012). Reviewing the economic efficiency of disaster risk management Review Commissioned by Foresight Project: Reducing Risks of Future Disasters.Priorities for Decision Makers. IIASA, 2012.
[58] Moench, M., Hochrainer, S., Mechler, R., Kull, D., Linnerooth-Bayer, J., Patnaik, U., Singh, G. (2009). Rethinking the costs and benefits of disaster risk reduction under changing climate conditions. In: Moench, M., Fajber, E., Dixit, A., Caspari, E., Pokhrel, A. (Eds.), Catalyzing Climate and Disaster Resilience. ISET-Nepal, Kathmandu, Nepal.

climate change, and addressing the problem of uncertainty through options that seek to introduce flexibility, robustness, within a strong framework of learning.

To assess the most cost-effective options, the proposal has built on available literature reviews on the benefit to cost ratios of adaptation interventions, using both the international literature and field studies from Ethiopia. The starting set of options were selected from the international literature from a recent inventory and appraisal of 1000 studies on the economics of adaptation, compiled as part of the ECONADAPT project and recently summarised in an OECD publication[59]. These were then filtered down using an analysis of the most relevant and cost-effective options for Ethiopia, drawing on international and local studies.

Alignment with national Climate Resilient (CR) strategies. Ethiopia has already undertaken detailed agriculture and water resilience strategies and these have prioritised options, using extensive technical and economic analysis as well as stakeholder analysis. The options in this proposal are taken from these strategies. They include:

- Small-scale irrigation;
- Climate smart agriculture (soil and water conservation);
- Livelihood diversification;
- Rangeland rehabilitation / management;
- Ecosystem based adaptation (conservation and rehabilitation);

Analysis of possible options to address climate risks

Climate change is projected to disrupt global and regional water cycles, though these changes will not be uniform, with differences between wet and dry seasons and between season, arising from changes in precipitation, temperature and evapo-transpiration, etc.[60] Climate change is likely to intensify a number of potential risks, including more frequent and/or intense floods, and changes to the water supply-demand balance including potential water deficits and water quality.

The analysis has identified a number of promising low regret options for address water management and droughts, drawing on the existing risk reduction and water management literature. This literature indicates that the costs and benefits of investing in climate risk management (with low regret options) led to an average benefit to cost ratio of around 4 to 1[61]. Options with high benefit to cost ratios include enhanced information and monitoring, integrated planning, and ecosystem based adaptation, all of which have been included in the proposal.

[59] OECD (2015). 'Climate Change Risks and Adaptation: Linking Policy and Economics'. OECD Publishing, Paris.
[60] IPCC, 2014: Summary for policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.
[61] ECONADAPT (2015). "The Costs and Benefits of Adaptation, results from the ECONADAPT Project, ECONADAPT consortium, http://econadapt.eu/.

The identification of options has been complemented with Ethiopian studies. This is important as the costs and benefits – and thus effectiveness of options – can vary widely depending on the specifics of the situation, reflecting the large differences among regions, agro-ecological conditions, pre-project land uses, household asset endowments, and the differences in cost structure of the various types of activities considered.

Options for adaptation for water availability: components 1 and 2

Adaptation to reduced water availability is often presented in terms of management of supply and demand. Supply measures include increasing water storage capacity (e.g. dam construction, increase dam storage capacity, off-stream reservoirs for agriculture, rainwater harvesting, etc.); water distribution improvement (e.g. leakage control); greywater reuse and rainwater harvesting; desalination; water transfer; aquifer storage and recovery; and water shipment. Demand measures involve increasing water use efficiency and reducing water consumption through changed sectoral activity (e.g. relocation of industrial production), behavioural changes, and technological uptake (e.g. water efficient appliances). The use of ecosystem-based measures to deal with droughts, flood risks and worsening water quality for example through river restoration, rural land use change and establishing or protecting wetlands has also been proposed.

The project proposal has reviewed the potential options for the project and also the consistency with national climate policies in the CRGE. This has led to the prioritisation of the proposed measures.

For drinking water, there is an existing Government priority to accelerate universal access to safe drinking water. Water supply investments have high health benefits, and these interventions are highly cost-effective, as shown in recent reviews[62]. The project proposal addresses this through the groundwater wells. While this involves higher marginal costs than surface water, the project surveys have identified that there is insufficient or unreliable surface water in these areas, and thus to provide safe and resilient sources of drinking water, groundwater wells are needed. However, to ensure these are sustainable, these will be powered by solar pumps, reducing the environmental impacts of greenhouse gas emissions and air pollution that would arise from diesel pumps. In a recent ex-ante evaluation of a WaSH project supported by the World Bank in Ethiopia[63], results of economic analyses showed that the economic internal rate of return (EIRR) was 24%, which shows the high benefits of the projects.

There are also benefits from investing in water supply for local irrigation. Small-scale irrigation has been recommended in both the CR Water Strategy and the CR Agriculture strategy in Ethiopia, and there is evidence from studies in Ethiopia on the

[62] Hunt (2011) Policy Interventions to Address Health Impacts Associated with Air Pollution, Unsafe Water Supply and Sanitation and Hazardous Chemicals. Environment Working Paper No. 35. OECD.
[63] World Bank, (2014). Water, Sanitation and Hygiene project: Project Appraisal Document.

high benefits of these schemes. Small scale irrigation is well established, a proven good practice with adequate experts available. Irrigation helps to reduce the impacts of climatic variability and many forms of drought (although not all, depending on the source of the water supply). Low-cost irrigation systems allow continuity of production, especially in the dry season, reduce variability of output, and enable a shift to higher-value crops. Studies that have looked at the cost-effectiveness of these schemes (in Ethiopia) report high benefit to cost ratios, of 3 to 5:1[64], showing benefits far exceed costs. Small-scale irrigation practices used in the Lake Tana basin[65] increased mean annual household income by ETB 3353 per year, a 27% increase over income for non-irrigating households.

To complement these, the proposal has a focus on climate smart planning, recognising that the international adaptation literature[66] has identified the following low regret options.

- Options that build capacity and increase knowledge and awareness, such as enhanced climate and hydrological monitoring and information and integrated water management options[67]. These concepts are therefore included in component 1 on climate smart planning.
- In addition, recent studies have highlighted that for water saving,[68] the integration of cross-sectoral effects significantly alters the ranking of the adaptation measures, i.e. when a wider multi-user and functionality approach is taken, different options emerge as priorities. This means that results depend on whether analysis is undertaken from a cross-sectoral perspective, as is the case in this proposal.
- Options that help deal with current climate variability, such as water efficiency measures[69], leakage reduction and efficient water use[70]. A recent study found for example that conversion from flood to drip irrigation could improve farm-level net returns and public net benefits. In addition, NPV of drip irrigation for small-scale farmers could be improved if the technology was extended to include food

[64] Bekele Yeshitela, NataTadesse and Bheemalingswara Konka, (2012), Preliminary Study on the Impact of Water Quality and Irrigation Practices on Soil Salinity and Crop Production, Gergera Watershed, Atsbi-Wonberta, Tigray,Northern Ethiopia, MEJS, Volume 4 (1):29-46.
Hagos, F., Makombe, G., Namara, R. E., Awulachew, S. B., (2009), Importance of irrigated agriculture to the Ethiopian economy: Capturing the direct net benefits of irrigation. Colombo, Sri Lanka: International Water Management Institute. 37p. (IWMI Research Report 128).
[65] Ayele Getaneh K. et al. (2013). Impact of small-scale irrigation schemes on household income and likelihood of poverty in the Lake Tana basin of Ethiopia.

[66] ECONADPT (2015). The Costs and Benefits of Adaptation: Review of the Literature.
[67] De Bruin, K., Dellink, R. B., Ruijs, A., Bolwidt, L, van Buuren, A., Graveland, J., de Groot, R. S., Kuikman, P. J., Reinhard, S., Roetter, R. P., Tassone, V. C., Verhagen, A. and van Ierland, E. C. (2009b), 'Adapting to climate change in The Netherlands: an inventory of climate adaptation options and ranking of alternatives, Climatic change, 95, 23–45. DOI 10.1007/s10584-009-9576-4.
[68] M. Skourtos, Ch. Tourkolias, D. Damigos A. Kontogianni, P. A. Harrison and P. Berry (2014). Incorporating cross-sectoral effects into analysis of the cost-effectiveness of climate change adaptation measures. Climatic Change. DOI 10.1007/s10584-014-1168-2
[69] Flörke, M., Wimmer, F., Laaser, C., Vidaurre, R., Tröltzsch, J., Dworak, T., Stein, U., Marinova, N., Jaspers, F., Ludwig, F., Swart, R., Giupponi, C., Bosello, F., & Mysiak, J. (2011). Climate Adaptation–modelling water scenarios and sectoral impacts. Final Report ClimWatAdapt project.
[70] ECA (2009). Shaping Climate-resilient Development a framework for decision-making. A report of the economics of climate Adaptation working group. Economics of Climate Adaptation.

crops rather than limiting it to cash crops[71]. These efficient options will thus be considered in the irrigation options to maximise cost-effectiveness.

Analysis of adapation options for agriculture: component 3

The existing agricultural systems in the proposal areas are highly affected by the current climate and future climate change has the potential to impact further. The high proportion of rain-fed crop production makes it very sensitive to rainfall variability and water is the central production factor affecting sustainability and food security. There are also compounding factors of soil erosion and land degradation, which affect long-term productivity. Future climate change has the potential to exacerbate these impacts, by increasing variability and affecting rainfall potential.

In response, a set of farm and community level adaptation options have been considered for this proposal.

For the farm level, a range of different approaches are possible, including additional fertiliser use, changes to planting and management practices, and new crop varieties/species. The CRGE Climate Resilience Strategy for Agriculture recommends a focus on climate smart agriculture, as these options have multiple benefits, providing enhanced climate resilience, but also providing wider soil and water conservation benefits which have wider environmental benefits. These sustainable soil and water management practices improve soil water infiltration and holding capacity, as well as nutrient supply and soil biodiversity. They include options such as agroforestry, soil and water conservation, reduced or zero tillage, and use of cover crops. These reduce current climate related risks from rainfall variability and soil erosion, increase soil organic matter and soil fertility, increasing productivity, and reduce emissions by reducing soil emissions or preventing more emission intensive activities[72]. These contrast with more traditional measures to increase productivity, such as fertiliser, which has negative externalities (water pollution, greenhouse gas emissions). Therefore, aadoption of sustainable agriculture options (such as soil and water conservation) not only increases income, but also boosts nutrition security and reduces probability of crop failure and agro-chemical use (especially N-based fertilizers and pesticides and herbicides) in Ethiopia[73].

[71] Mohamed, B. (2013). Better economics: supporting climate change adaptation with stakeholder analysis: a case study of Morocco. International Institute for Environment and Development (IIED), London, UK.
[72] Giacomo Branca, Nancy McCarthy, Leslie Lipper and Maria Christina Jolejole (2011). Climate-Smart Agriculture: A Synthesis of Empirical Evidence of Food Security and Mitigation Benefits from Improved Cropland Management. Food and Agriculture Organization of the United Nations (FAO). Mitigation Of Climate Change In Agriculture Series 3. December 2011
[73] Kassie, M., Teklewold, H., Marenya, P. Jaleta, M. and Erenstein, O. (2015). Production risk and food security under alternative technology choices in Malawi. Application of a multinomial endogenous switching regression. Journal of Agricultural Economics. 66(3): 640-659.

Detailed studies in Ethiopia[74] have shown that the soil and water conservation options (above) have high cost-effectiveness, different options are more effective in different zones (e.g. with soil bunds and stone bunds in Tigray, waterways and stone bunds in Amhara, shade trees in SNNPR, etc.), reflecting the fact that waterways and trees showed strong and significant positive effects in high-rainfall areas, whereas water management is a priority for the drylands. Spatial heterogeneity is thus included in the proposed project, related to the specifics of each agro-ecological and adaptation planning zone, the existing farming systems, and the institutional and social structures. Their adoption significantly reduces downside risk or probability of crop failure, thus indicating the role of such practices in providing a type of insurance.

A further finding from Ethiopian studies is that complementary packages of options, e.g. as portfolios rather than single technical solutions, are more cost-effective[75]. This information has therefore been used to shape the combination of options put forward in the proposal. This can be applied in two ways.

First, when interventions are combined with capacity building and improved information: an example in Ethiopia is the portfolio of improved seeds, soil and water conservation, better extension services and improved climate information, was found to be most effective in enhancing agricultural production in climate vulnerable areas.

Second, the adoption of climate smart agriculture practices, such as legume rotation, legume intercropping, minimum tillage, residue retention, conservation agriculture, and soil and water conservation increases net income and food security, but benefits are greater when there is joint adoption rather than through adoption of individual practices. For example[76], it has been found that when only minimum tillage is adopted, the net income from maize production is USD 99/ha, but that this increases to USD 194/ha when it is combined with use of improved maize varieties and to USDD 240/ha when crop diversification (legime-maize intercopping & rotation) is added to these two practices. Similarly, analysis has found these options are win-win for the local farming community if soil and water conservation techniques complemented irrigation and rain-fed agriculture[77].

At the community level, there are many options that could help agricultural water management. Again the CR Agriculture resilience strategy sets out the potential for ecosystem based water shed management and rangeland restoration. These have high direct benefits but also provide ecosystem services. The proposal therefore has a focus on improving watershed management using integrated water resource

[74] Deressa, T., Hassan, R. M., et al., 2008. Analyzing the Determinants of Farmers ' Choice of Adaptation Methods and Perceptions of Climate Change in the Nile Basin of Ethiopia. IFPRI Discussion Paper 00798, (September).
[75] Di Falco, S. and M. Veronesi (2012), "How African Agriculture Can Adapt to Climate Change? A Counterfactual Analysis from Ethiopia", Working Paper Series, No 14, Department of Economics, University of Verona.
[76] Marenya, P. and Kassie, M. (2016). Pathways to sustainable intensification in Eastern and Southern Africa: Looking forward, achieving impact. Interim terminal report for the Adoption Pathways project. CIMMYT, Addis Ababa, Ethiopia. pp.23.
[77] Lunduka, R.W., Bezabih, M. and Chaudhury, A. (2012). Stakeholder-focused cost benefit analysis in the water sector: A synthesis report. International Institute for Environment and Development (IIED), London, UK.

management and ecosystem based (green) options. This includes watershed management (enhanced conservation and restoration, notably of upstream catchments with forests), which have been shown to be highly beneficial[78]. A recent study[79] has found that investment in sustainable land and watershed management resulted in a 24% higher value of production in the Blue Nile basin.
There is also a set of interventions on rangeland restoration. This has been advanced in Ethiopia and has shown high benefits and high cost-effectiveness. The benefits[80] arise from improved fodder availability and quality, with productivity benefits for livestock (and increased income), as well as increased use or cash from the harvest of grass. Area rehabilitation has wider ecosystem benefits, in moving from highly degraded areas to rehabilitated areas, with wider benefits in terms of soil and water conservation, and soil fertility improvement.

Options for livelihood diversification: component 4

As highlighted earlier, the current livelihoods in the proposed project areas are highly vulnerable, and a policy outlined in the CRGE strategy was for livelihood diversification. The strategy recommended this diversification is targeted towards activities that are consistent with climate resilience (i.e. that are climate smart) but also help deliver in terms of the national green economy objectives, i.e. so that they reduce environmental impacts and emissions at the same time. This provides a link between national CRGE strategy and bottom-up interventions.

The CR Agriculture resilience strategy also includes a set of recommended livelihood diversification options, which is based on a review and prioritisation exercise. This highlighted the need for herd diversification, especially for more drought tolerant species of sheep and goats, as well as diversification towards poultry. Previous analysis in Ethiopia has shown this has very positive benefits for incomes[81]. Similarly, diversification to other activities, notably beekeeping, has been recommended in the strategy. This has important benefits through the linkages to forests, and thus enhances ecosystem protection (and ecosystem services) as well as providing income benefits.

Options for capacity building: component 5

While analysis of the benefits of capacity building is challenging due to the quantitative nature, studies that do assess these options report high benefit to cost ratios. Indeed, several studies find that these 'soft options' (e.g. capacity building,

[78] Georgis, Kidane. 2009. The role of trees on natural resource conservation with particular emphasis on watershed, EDIAR, Ethiopian Development Research Institute, Addis Ababa, Ethiopia
[79] Schmidt Emily [et al.] (2014). Determinants and Impact of Sustainable Land and Watershed Management Investments: A Systems Evaluation in the Blue Nile Basin, Ethiopia. - Working papaer 62.
[80] Georgis, Kidane, Alemneh Dejene and Meshack Malo. 2010. Agricultural based Livelihood Systems in Drylands in the Context of Climate Change: Inventory of Adaptation Practices and Technologies of Ethiopia, FAO publication No 38.
[81] World Bank, 2011. Costing Adaptation through Local Institutions Village Survey Results : Ethiopia,

information, planning) are among the most effective options [82] and the benefits of 'soft' options increases significantly under higher climate change. Furthermore, a number of studies report that these capacity building and institutional strengthening options lead higher benefits for the outcome based options (e.g. water management, agriculture) as they enhance the effectiveness and efficiency of these options.

Finally, reflecting the focus on iterative climate risk management, there has been a project focus on monitoring, information and learning. This captures the fact that information has a value, and that investment in monitoring with learning will help produce better decisions in the future: a key aspect given the changing climate and high uncertainty on future projections in Ethiopia. These options provide high cost-effectiveness through the provision of benefits from improved decision making. These activities include institutional strengthening and awareness-raising, but also information provision that will support early actions: such measures are highly synergistic to the low-regret options above, creating the enabling environment or increasing the effectiveness of delivery.

Table 6. Cost of each component and number of beneficiaries

Project component	Cost	No. of beneficiaries
1. Climate smart resilient project design and plans	360,910	14 Kebeles with climate smart plans
2. Climate resilient integrated water resource use	4,876,667	15000 households receiving access to potable supplies of land irrigated.
3. Climate smart agriculture – land – water - forest integration	734,681	15000 households benefiting from climate smart agriculture (enhanced natural resource management) from 140 ha of physical moisture and soil conservation structures, 70 ha of biological conservation measures (e.g. grass strips, hedges, planting of physical measures), 70 ha of farmland gully treatment and 42 ha of agroforestry. 15000 households benefiting from community rehabilitation with 140 ha of physical and biological SWC measures, 28 ha of area closures for enhanced natural regeneration, 84 ha of upper watershed gully treatment and 63 ha of rangeland management (in pastoral watersheds).

[82] The Risk to Resilience Study Team (2009): Catalyzing Climate and Disaster Resilience: Processes for Identifying Tangible and Economically Robust Strategies: Final Report of the Risk to Resilience Study, eds. Moench, M., Fajber, E., Dixit, A., Caspari, E., & Anil Pokhrel, ISET, ISET-Nepal, Kathmandu, Nepal, 328 pp.
Anton Cartwright, James Blignaut, Martin De Wit, Karen Goldberg, Myles Mander, Sean O'Donoghue and Debra Roberts (2013). Economics of climate change adaptation at the local scale under conditions of uncertainty and resource constraints: the case of Durban, South Africa. Environment and Urbanization 2013 25: 139. DOI: 10.1177/0956247813477814

		15000 households benefiting from enhanced watershed management and ecosystem services from 1600 hectares of afforestation/reforestation of degraded forestland.
4. Resilient livelihood diversification	490,603	Households receiving training and support for enhanced access to finance and livelihood diversification.
5. Capacity building, monitoring, evaluation and learning	2,545,778	Local government and farmers staff trained.

Table 7. Justification for selection of proposal options

Objective / Intervention	Activities and benefits	Alternative interventions	Reason for not opting for this	Evidence for recommended option
Component 2: Climate resilient integrated water resource use				
2.1. Installation of potable water supplies using solar pumps	Use of solar ground-water pumps to in wells with ground water table above 40 meters or install handpumps when the ground water is below 40 meters to provide water for public supply - Use of solar pumps or hand pumps to reduce external (environmental) costs. - Springs will be captured when the ground water extrudes above ground.	-Surface water extraction -Rain water harvesting -Different pumping options:Diesel powered pumps or hand pumps	- Surface water excluded due to not being potable and or not available within 15 miniutes of walking distance from the kebele - RWH excluded due to unreliability of supply (areas often have no rainfall for months, especially during droughts and high capital costs to construct the RWH scheme). - Diesel Powered pumps excluded due to their unreliability in the rural context, require lubrication and maintenance costs periodically and require diesel to be purchased by the community which at times is not affordable and at most times is not even accessible by the community. Furthermore, Diesel generators emit carbon and are not green.	Water supply has high benefit to cost ratios due to public health benefits and is directly related with increased school enrollemnt. Solar pumps offer lower environmental impacts and a sustained working period with minimal maintenance and operation requirements. The technology is affordable by the communities as the design does not consider incorporating batteris as power banks which are expensive and also environmentally not friendly..
2.2: Design and development of irrigation for agriculture (and livestock)	Use of small-scale irrigation based on wells and or sand/checkdams for drip irrigation with options based on site conditions to maximise cost-effectiveness. - Handpumps and springs captured when the ground water is a maximum depth of 40 meters	-Surface water extraction -Different pumping options: diesel powered pumps -Irrigation technology, i.e. sprinkler, -Water efficiency,	Surface water excluded due to other pressures on water resources (supply constraints. - Sprinkler technology excluded as it is not an efficient method of provision of water to irrigate land in a water constrained area. - Diesel powerd pumps not	Irrigation systems chosen on basis of cost-effectiveness. Evidence from previous Ethiopian studies for small irrigation reports benefit to cost ratios of 3:1 to 5:1, showing highly cost-effective.

	below ground or is extruding on the surface. - Sand (check) dams will be constructed where there is a river and or creek crossing the kebele	demand side management tariffs	considered for reasons listed in 2.1	
Component 3: Climate smart agriculture – land – water - forest integration				
3.1. Introduction of climate smart agriculture – farm level	Soil and water conservation, with portfolios of options and strong focus on capacity building and information	Fertiliser use	Fertiliser is expensive, and has negative environmental impacts	Portfolio combining soil and water conservation with enhanced capacity, as well as multiple CSA options, shown to have highest benefits in Ethiopia.
3.2. Integrated CRGE watershed management – community and watershed level	Ecosystem based watershed management (afforestation) Rangeland rehabilitation and restoration	Water infrastructure (storage)	Engineered solutions costly and there are high recurrent maintenance costs.	Ecosystem based adaptation and rangeland options generates high direct and ecosystem benefits.
Component 4: Resilient livelihood diversification				
4.1. Climate resilient and green livelihood diversification (climate smart value chains)	Livelihood diversification towards climate resilient activities, with investment in market information and value chains Activity centres on micro-finance rather than grants.	Resettlement Social protection	Resettlement costly ad high social impacts, and likely to increase rural migration (to urban) and land abandonment (increasing degradation). Social protection involves reactive, whereas preventative mesures most cost-effectivne.	Climate resilient, low carbon livelihood diversification including poultry, resilient breeds, beekeeping. Use of micro-finance provides more cost-effective approach.
Component 5: Capacity building, monitoring, evaluation and learning				
5.1. Building capacity and knowledge transfer 5.2: M&E and learning (adaptive management) 5.3: Communication and outreach	Capacity building at local level, with learning components	National capacity building	National level would leave a gap in knowledge and understanding at the local level where key decisions are made and resources deployed.	Investing in capacity building has high benefit to cost ratios. It also enhances effectiveness and efficiency of options above

Cost effectiveness from a project management perspective

The project management structure is designed by making sure the minimum number of staff that is required is employed. Considering that the project covers seven Woredas (districts) in five regions of Ethiopia, the project management includes staff at the Federal level to be involved in the overall coordination as well as staff at the regional and woreda levels. In terms of number of staff to be employed under the project both for project management and execution, the number to be employed at woreda and kebele levels is more than four times the number to be employed at regional and federal levels. On the other hand, the cost of employing staff at woreda and kebele levels is only about 46% of the total cost of salaries paid to all staff employed for project execution and management. Thus, this arrangement will reduce cost of project management while also contributing to very close management and support in the implementation of the project's activities at woreda and kebele levels. Such organization of project management will also contribute to local capacity building and sustainable management of the project even after the end of the project.

Implementation and execution of the project will also benefit from support of government institutions with experience in implementation of activities similar to what is proposed in the project. Experience sharing from other areas will also contribute to reduction of implementation costs.

Existing systems of planning, budgeting, reporting, procurement and financial management systems will be implemented. These are expected to help implement the project at the minimum cost possible while maintaining standards and requirements to reduce losses due to inefficiency and related problems. Moreover, competitive procurement procedures will be followed and that will help reduce costs.

Experience gained from the project will also be used in other areas through scaling up measures.

D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The project is aligned with national and local polices, as well as strategies and plans related to development, agriculture, disaster risk reduction, water, forests, climate change and environmental management.

At the highest level, the project is consistent with the Constitution of the Federal Democratic Republic of Ethiopia (FDRE) which provides the overarching framework for sustainable development, planning, and implementation in Ethiopia, and

Ethiopia's long-term development vision to achieve middle-income status by 2025 while developing a green and a resilient economy. This vision enables high economic growth through building a modern and productive agricultural sector, strengthening the industrial base, and growing exports.

Agricultural development is the basis for much of this economic growth, with a projected growth rate of 8.6%. This is anticipated to come from increases in production of major food crops, from large increases in fruit and vegetable production, from a fourfold increase in the total value of coffee exports, and from a large relative increase in the export of live animals. The climate smart investments in agriculture and livestock in the project, enhancing productivity by reducing climate induced losses, are therefore in line with this national level policy.

The project is also in line with policies, strategies and plans. The key areas here relate to agriculture (and livestock), disaster risk management, forestry and water.

Agricultural policy is set out in the Agriculture and Rural Development Policy and Strategy (2003) and the key role agriculture can play in transforming the economic development of the country. This highlights the need for environmental rehabilitation and watershed development. There is also an Agricultural Development Led Industrialization (ADLI) Strategy which aims to achieve initial industrialization through robust agricultural growth and establishes close linkage between the agricultural and the industrial sectors. This was taken forward with medium-term development plan including the Sustainable Development and Poverty Reduction Plan (SDPRP) (2002/03-2004/05), the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) implemented during 2005/06-2009/10 and subsequent Growth and Transformation Plans (GTP-I, 2010/11-2014/15 and GTP-II, 2015/16-2019-2020). These plans put high emphasis on environmental issues as articulated in the Conservation Strategy of Ethiopia (CSE)[83] including goals for zero deforestation and sustainable forest use, with reforestation and afforestation as carbon sinks, watershed services maintained – to address floods and droughts and provide erosion control.

More recently, these agricultural policies, strategies and plans are being translated into implementation by the MoA Policy Investment Framework. This is a strategic framework for the prioritisation and planning of investments to drive Ethiopia's agricultural growth and development, designed to operationalise the Comprehensive Africa Agriculture Development Programme (CAADP) Compact. It is anchored to, and aligned with, the national vision of becoming a middle income country by 2020 together with a number of key policy and strategic statements.

Within this framework, there are major programmes, focused on agriculture growth and natural resources.

[83] The Conversation Strategy of Ethiopia, which was introduced in 1997, focuses on conservation of natural resources and reversing environmental degradation through a variety of means such as soil and water conservation, reforestation and afforestation, etc.

- The main programme in Agricultural Development is the Agricultural Growth Program. The objective of this is to increase agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth, through i) agricultural production and commercialization, ii) small-scale rural infrastructure development and management, and iii) monitoring and evaluation. Again, the woreda focus of the proposed project and it's components are in line with this strategy.
- The main programme of investment in Natural Resources is Ethiopian Strategic Investment Framework (ESIF), which has been translated and operationalized through the Sustainable Land Management Program (SLMP), currently in its second phase. It has the objective of reducing land degradation and increasing agricultural productivity, to lead to higher household incomes and food security. This program combines the benefits of land tenure security and sustainable land and water management practices in watersheds. Hence the inclusion of sustainable land and water management options in this proposal is in line with this national flagship program.
- There is a recently published Livestock Master Plan (2015). The overall objective is to improve smallholder incomes and nutritional status through investments in selected livestock value chains[84]. These investments are, in turn, targeted at increased productivity and competitiveness of selected value chains to the benefit of smallholders, including women, and improvements in the quality and diversity of household diets through intake of livestock products. The Livestock mast plan sets out how investment interventions—better genetics, feed and health services, which, together with complementary policy support—could help meet the GTP II targets by improving productivity and total production in the key livestock value chains for poultry, red meat-milk, and crossbred dairy cows.

In the disaster risk management area, there is the National Policy and Strategy on Disaster Risk Management (NPS-DRM). This emphasizes the need for a risk management system that intrinsically applies an ex-ante preventive or proactive, holistic, comprehensive and integrated multi-hazard and multi-sectoral approach. This is reflected in this proposed project.

This policy is being implemented through the Disaster Risk Management Strategy Programme and Investment Framework (DRM SPIF), which has the objective of reducing disaster risk and the impact of disasters through the establishment of a comprehensive and integrated disaster risk management system. There are a number of major programmes that within this framework:

- The main programmes in disaster risk management are the Productive Safety Net Program (PSNP), which has the objectives to reduce household vulnerability, improve resilience to shocks and promote sustainable community development in food insecure rural areas with i) safety net grants (labour for public works and

[84] International Livestock Research Institute (ILRI) (2015), Ethiopia Livestock Master Plan. ILRI Project Report. Nairobi, Kenya: International Livestock Research Institute (ILRI).

direct support) ii) drought risk financing, iii) institutional support, and iv) Household Asset Building Program (HABP) strengthening advisory services for household investments; improving efficiency and effectiveness of financial service delivery and program management.

- An exercise to climate smart the PSNP has recently been completed (the Climate Smart Initiative, CSI) and this has now been translated into PSNP IV, which is enhancing adaptation in the programme through modifications to the transfer, public works and livelihoods components of the PSNP.

In relation to water:

- There is a National water resources management policy and strategy: The overall goal of the national water resources management strategy is to enhance and promote all national efforts towards efficient, equitable, and optimum utilisation of the available water resources of Ethiopia for advancing socio-economic development on sustainable basis (MoWR, 2010). Two strategic directions of the water policy are water resources development and water resources management. The strategy focuses, among others, on water resources development for economic and social benefits of the people, on equitable and sustainable basis, allocation and apportionment of water resources, managing and combating drought, reducing and regulating floods through sustainable mitigation, prevention, rehabilitation and other practical measures, and conserving, protecting and enhancing water resources and the overall aquatic environment on sustainable basis.
- There is a WASH programme. The Government of Ethiopia has the ambition of achieving universal access to water and sanitation by 2020, as a central part of its poverty reduction ambitions. In doing so, a One WASH National Programme have been developed in collaboration with the Sanitation and Water for All Partnership[85]. Provision of safe and sufficient water supply and adequate sanitation services are indispensable components in the sustainable development of Ethiopia's urban and rural socio-economic well-being. The principal objective of the WASH program is to ensure the provision of sustainable, efficient, reliable, affordable and users-acceptable WASH services to the Ethiopian people, including livestock watering.
- The Climate Resilient (CR) Strategy for water and energy identifies these sectors as being key to Ethiopia's development. One of the objectives of the CR strategy is to identify priorities for the water and energy sectors to build climate resilience and reduce the impact of current climate variability and climate change. In particular, the strategy identifies two priority areas in the water resources: balance water demands through development and regulation of water resources, and enhance climate resilience self-supply through improving local water storage facilities and supporting participatory water resources management.
- In relation to water management, and Community-based Participatory Watershed Development (CPWD). This aims at conserving soil, rainwater and vegetation for productive uses; harvesting surplus water; promoting sustainable farming and

[85] http://sanitationandwaterforall.org/report_card/ethiopia

stabilizing crop yields by adopting suitable soil, water, nutrient and crop management practices; rehabilitating and reclaiming marginal lands through appropriate conservation measures and mixing of trees, shrubs and grasses, based on land potential; enhancing the income of individuals through diversification of agricultural produce, increased employment opportunities and cottage enterprises, particularly for the most vulnerable, linked to the sustained use of natural resources.

For forests, there is the Forest Policy and Strategy (2007) which aims at achieving dual objectives of (i) meeting public demand in forest and forest products, and (ii) enhancing the socio-economic and environmental contribution of forests. There is also the Ethiopian Forestry Action Program (EFAP), Forest Development, Conservation, and Utilization Policy of 2007 and conservation policies, such as National Forest Priority Areas (NFPAs). The plans for restoration of degraded forestlands in this proposal are in line with these policies.

There are policies that encourage diversifying income sources for farmers (CC-DARE) and activities such as beekeeping, fruit production, and fish farming are being promoted. This proposal builds on these, identifying those new livelihoods that will align to the climate resilient green growth objectives.

On the environment side, there is the Environmental Policy of Ethiopia (1997) which comprised eleven-sectoral and eleven cross-sectoral policy elements, and which raised the issues of soil husbandry and sustainable agriculture, forest resources, biodiversity resources, water resources and environmental and land degradation.

With respect to climate change, Ethiopia has undertaken several strategic and programmatic adaptation actions. The strategies and plans include:
a. The National Adaptation Programme of Action (NAPA) (2007_
b. The Ethiopian Programme of Adaptation to Climate Change (EPACC 2011);
c. Nine National Regional States and two City Administrations adaptation plans;
d. Five sectoral adaptation plans;
e. Agriculture sector adaptation strategy

A draft second national communication is also under preparation.

Ethiopia has also submitted an INDC (Intended Nationally Determined Contribution). This centres on the CRGE, though it highlights that the main effort up to and beyond 2020 is to increase resilience and reduce vulnerability of livelihoods and landscapes in three pillars; drought, floods and other cross-cutting interventions. The activities listed in this proposal are ones that have been identified and reported in the INDC.

The INDC lists many of the measures in this proposal, including soil and water conservation measures, water harvesting and small-scale irrigation, restoration of degraded areas and forests, sustainable land management and livelihood

diversification and strengthening capacity. The proposal therefore contributes directly to the deliver of the INDC.

Activities on climate change have been brought together under the Climate Resilient Green Economy Strategy (CRGE). The CRGE strategy (2011) has four pillars, two of which are of direct relevance to the proposed project:

- Improving crop and livestock production practices for higher food security and farmer income while reducing emissions (agricultural and land use efficiency measures).
- Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks (increased GHG sequestration in forestry).

Of particular relevance, the CRGE Strategy includes recommendations to increase afforestation, to address degraded agricultural land through small-scale irrigation and to rehabilitate degraded pastureland and farmland. It also recommends livelihood diversification, notably with the development of poultry and bee-keeping, which have been included in this proposal.

Detailed CR sector strategies have been produced for:

- Agriculture and forestry[86], and
- Water and energy[87].

These sector strategies also provide key recommendations which have been adopted in this proposal. These include:

- The adoption of climate smart agriculture, particularly farm and community level soil and water conservation;
- The use of forests for adaptation (ecosystem based adaptation), notably for watershed management
- Rangeland rehabilitation and management;
- Enhancing access to credit for livelihood diversification away from highly vulnerable livelihoods;
- Accelerate universal access to water;
- To enhance irrigation potential, noting the need for water demands to be managed and allocated according to the water that is available;

A table of how the 5 components of this proposal align with CRGE strategy are shown below.

[86] FRDE. Ethiopia's Climate Resilient Green Economy. Climate Resilience Strategy: Agriculture.
[87] FRDE. Ethiopia's Climate Resilient Green Economy. Climate Resilience Strategy: Water and Energy.

Project component	Alignment with Climate Resilient (CR) Strategy
1. Climate smart resilient project design and plans	✓ CR Strategy – climate resilience. ✓ CR Water and Energy Strategy - water resource management (balance).
2. Climate resilient integrated water resource use	✓ CR Water and Energy Strategy – enhanced access to water. ✓ CR Water and Energy Strategy & Agriculture Strategy –small-scale irrigation. ✓ CR Strategy – renewable energy
3. Climate smart agriculture – land – water - forest integration	✓ CR Agriculture strategy – farm level soil and water conservation ✓ CR Agriculture strategy – community level soil and water conservation ✓ CR strategy – afforestation.
4. Resilient livelihood diversification	✓ CR Agriculture strategy – climate smart livelihood diversification. ✓ CR strategy – climate smart value chains
5. Capacity building, monitoring, evaluation and learning	✓ CR Agriculture strategy – iterative management. ✓ CR Agriculture– capacity building.

E. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

The project will be implemented in line with the national laws, legislation and standards, which may have relevance for the implementation. At the national level, the relevant laws are set out in the Constitution. There are also a set of relevant laws in the relevant sectors.

The Constitution (1995): The Ethiopian Federal Democratic Republic Constitution, which is the supreme law of land, provides the overarching principles and guidelines. It states that any law, customary practice or a decision of an organ of state or a public official which contravenes this Constitution shall be of no effect" (FDRE 1995, p.4). It is the supreme law of land that governs ownership and use of resources, environment, etc. For instance, the Constitution states that everyone has the right to live in a clean and healthy environment and the Government will make every effort to provide such an environment. The Constitution also holds the Government and the people of Ethiopia responsible for the preservation of natural resources and maintenance of ecological balances.

Forest law: The Forest Development, Conservation and Utilisation Proclamation (No. 542/2007) is the main federal framework for the forestry sector in Ethiopia (FDRE, 2007). It repeals the Forest Conservation, development and Utilisation Proclamation No. 94/1994. This Proclamation recognises two types of forest ownership- state and private forests- and provides for the designation, demarcation and registration of major forestlands as state forests including providing legal

recognition to privately held forests. This proclamation provides a number of incentives for non-state actors such as local communities and the private sector to get involved in the management of forest reserves or to rehabilitate and/or reforest new areas.[88]

- Forest Development, Conservation and Utilization Policy and Strategy (2007)
- Forest Development, Conservation and Utilization Proclamation No 542/2007

Land law: The Ethiopian constitution of 1995 is the main source of the basic law regarding land ownership, management and administration that shall not be overruled. The two main policy objectives for the continuation with respect to land are social equity and tenure security. To meet the first objective, the Constitution as well as other Federal and Regional Land Proclamations ensure access to agricultural land. The objective is to ensure equality of citizens in using the land (Ambaye, 2012:5). As for tenure security, the supreme law of the land prohibits any sale and exchange of land as land is owned by the state or public. As stipulated in Article 40(3) of the constitution, "the right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange" (p.14). So, the Constitution provides user rights only. Further, article 40(4) provides the legal basis for Ethiopian peasants to the right to obtain land without payment and the protection against eviction from their possession. The most recent proclamation is the Federal Democratic Republic of Ethiopia Rural Land Administration and Use Proclamation 2005. The fundamental basis of the proclamation is to ensure sustainable rural land use planning, identify the size and use rights of "the different types of landholdings" in the country, direct mechanisms to resolve problems between farmers and agricultural investors, and between pastoralists and agricultural investors who encourage individual farmers; and establishing a conducive system of rural land administration.

Environmental laws: The Constitution of FDRE provides the guiding principles for environmental conservation and management. There are accompanied proclamations to operationalize the law.

- Environmental Policy (1997)
- Development, Conservation and Utilization of Wildlife: Proclamation No. 541/2007
- Ethiopian Wildlife Development and Conservation Authority Establishment: Proclamation No. 575/2008
- Environmental Impact Assessment Proclamation No. 299/2002
- National conservation Strategy, Volume II, 1994,
- National Biodiversity Strategy and Action Plan (2005)
- Ethiopia's Pollution Control Proclamation and standards (Proclamation no. 300/2002),

[88] See http://theredddesk.org/countries/laws/forest-development-conservation-and-utilisation-proclamation-no-5422007

- Guidelines for undertaking sector specific Environmental Impact Assessment on development projects.

The environmental policy and other laws are the basis for protection, conservation and promotion of the environment. Tools that are in use for implementation of the laws and regulations include Strategic Environmental Assessments (SEAs) and Environmental Impact Assessments (EIAs) which guide operationalizing environment and climate change considerations across sectors including agriculture and non-agricultural sectors. Both environmental and social impact assessments (ESIA) are mandatory for development projects, activities and programs in the country. The ESIA process is overseen primarily by the Ministry of Environment, Forest and Climate Change (MEFCC), CRGE Facility of the Ministry of Finance and Economic Cooperation (MoFEC), and National Planning Commission (NPC). Most recently, within the national policy context, there is an Environmental and Social Management Framework MFCC, which was approved in 2015. In addition, there are also a CRGE Facility manuals and guidelines, operation manuals, and appraisal guidelines to ensure compliance with environmental and social safeguards of the Facility/CRGE and social inclusion. Although the project doesn't involve resettlement, an ESIA has been undertaken for this project.

The Water Law: Within the framework of the Constitution (1995) and Water Policy (1999), the water resource management (WRM) proclamation 197/2000 provides the legal instrument governing WRM and administration in the country in terms of use, conservation, protection and management of water resources. The Constitution and the proclamation also provide mandates of the Federal Government and Regional States with respect to WRM.

- Constitution of the Federal Democratic Republic of Ethiopia Proc. 1/1995
- Ethiopian Water Resources Management Proclamation Proc.197/2000
- Ethiopian Water Resources Management Regulation Reg. 115/2005
- River Basin Councils and Authority Proclamation Proc. 534/2007
- Abbay Basin Authority Reg. No. 151/2008

The constitution gives power to the Federal Government with particular mandate to enact Laws for water management. Notably, the Federal law is entrusted with those water linking two or more regional state and those with an outlet the national territory (Art 51/11).

Note that private property, whether individually or collectively owned is inviolable in Ethiopia, i.e. exceptionally, the right to property may be overruled in the case of public interest.[89] In these cases, owners are entitled for compensation. The above policies, laws, and regulations are within each line ministries that have been involved

[89] Of particular importance is the use of land for public interest or services. As stipulated in the Article 2(5) of Proc. No. 455/2005, public interest refers to 'the use of land defined as such by the decision of the appropriate body inconformity with urban structure plan or development plan in order to ensure the interest of the peoples to acquire direct or indirect benefits from the use of the land and to consolidate sustainable socio-economic development'. Public services refer to services that can directly or indirectly benefit the society such as government office, school, health service, market service, road, etc.

in the project design and will be responsible for or closely involved with implementation. The project will comply with the relevant laws and regulations during implementation.

Where the project is undertaken by government institutions, there will be no need to issue licences.

When there are aspects run by the private sector, these will be addressed through the procurement process. The Ethiopian Investment Commission (EIC) is the autonomous regulatory organ responsible for issuing investment permits, work permits, trade registration certificates and business licenses as part of its one-stop-shop services for investors. The Investment Proclamation of 2002, as amended in 2003, and the 2003 Regulation on Investment Incentives, constitutes the main legal framework for both foreign and domestic investment in Ethiopia. This framework describes, among other things, the forms of investment and capital requirement, investment permits, concessions, incentives and facilities. An industrial development strategy was also issued in 2002 aimed at: (i) placing private investment as the engine of industrial development; (ii) promoting export-led and labour-intensive industrial development; and (iii) promoting joint ventures in industrial development. With regards to the forest sector, the current draft Federal Forest Proclamation has provisions for "certificates of possession" to be provided to forest user groups, and requires government organs to make best efforts to strengthen tenure security for participatory forest development associations and community groups.

The project – and procurement process – will also comply with the Environmental and Social Management Framework MFCC, which was approved in 2015[90]. This is based on based on best practices (including screening and categorization) of the environmental and social safeguards policies of the World Bank, the Global Environmental Facility, the Africa Developmental Bank and the European Investment Bank. The GoE has prepared prepare the ESSF to address environmental and social issues that may arise from any CRGE investments. Moreover, the preparation of the safeguards framework is based on the provisions and principles of the national environmental and social policies and legal frameworks, including the Constitution and the Environmental Impact Assessment Proclamation. This integrates environmental protection and social development into CRGE investments in a proactive manner to contribute towards sustainable development. The framework:

- Provides a set of internationally recognized standards and frameworks in environmental and social safeguards to the CRGE investment;
- Avoids, minimize or mitigate any direct, indirect, and potential adverse environmental and social impacts of CRGE investments;
- Defines and sets in place the roles and responsibilities of all relevant stakeholders/institutions in executing safeguards of CRGE investment initiatives throughout their life cycles; and

[90] Ethiopia's Environmental And Social Safeguards Framework (Essf) For The CRGE Initiative. Ministry of Environment and Forest. February 2015.

- Ensures that effective mechanisms are in place for safeguard compliance during CRGE investment implementations.

This applies with the following principles:

- Early application of environmental and social safeguards: Safeguards instruments should be applied proactively in the CRGE investments to contribute towards sustainable development.
- Participation of stakeholders: All concerned stakeholders and affected people should be given the opportunity to participate meaningfully at all stages of CRGE investment.
- Information Dissemination: Sufficient information should be provided in accessible and culturally appropriate ways. Providing information about the project at an early stage of the ESF/SSF process enables the public to understand the trade-offs, contribute meaningfully to project design and implementation, and to have greater trust with the coordinating and implementing entities of the CRGE projects.
- Prevention and mitigation of adverse impacts: one of the key principles is to prevent and/or mitigate any harm to the environment and to people by incorporating environmental and social concerns as an intrinsic part of CRGE investment cycle management. Environmental and social issues will be tracked during all stages of the CRGE investment cycle to ensure that supported investments comply with the procedures and guidelines laid out in the ESSF.
- Accountability and Transparency: Both CRGE implementing and executing entities are accountable for providing sufficient information on their CRGE investment proposals to the CRGE coordinating entities, and for managing the potential impacts of their CRGE investments. The CRGE coordinating entities are accountable for the decisions that are taken in line with the CRGE investments. By doing so, the ESSF would enable all entities involved in the CRGE implementation to be accountable and transparent in all their undertakings.

The ESSF applies to investment all projects financed through the CRGE Facility, and thus to this proposal. It involves screening to identify which projects require an EIA and similarly social issues, and then subsequent guidance should these be required.

Finally, it will comply with the CRGE manual and guidelines. The CRGE Operations Manual sets out the operational process. It includes the guidance on appraisal and this requires the compliance with environmental and social safeguards of the Facility/CRGE and social inclusion.

F. Describe if there is duplication of project / programme with other funding sources, if any –

As highlighted above, there are a number of existing programmes that are relevant to this proposal. The proposed project will co-ordinate its activities to align with and

complement these on-going efforts, but it will also go beyond these existing initiatives to pilot more integrated and portfolio based approaches, and provide a stronger linkage to current and future climate change. The proposed programme has deliberately included a strong monitoring, evaluation and learning component to take stock of the lessons and use these to help inform these other initiatives.

As described in section D, the following programmes are relevant:

- The Agricultural Growth Program.
- The Sustainable Land Management Program (SLMP),
- The Livestock Growth Program and Livestock Master Plan ,
- The Disaster Risk Management Strategy Programme and Investment Framework (DRM SPIF), which includes the Productive Safety Net Program (PSNP)
- The National water resources management policy and strategy and the WASH programme.
- The Ethiopian Forestry Action Program.

There is also the CRGE strategy and the sector reduction mechanism, which is the main implementation modality for climate adaptation in the country. The interventions in this proposal have been identified in the CRGE agriculture and forestry/water and energy low carbon, climate resilient strategies.

Summary of recently concluded, ongoing, and pipeline projects that are relevant to the proposed project

Project	Description	Timing and Geographical coverage	Potential duplication and synergies
Agricultural Growth Program (AGP)	The AGP is a programme aimed at increasing agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth, through i) agricultural production and commercialization, ii) small-scale rural infrastructure development and management, and iii) monitoring and evaluation. Total financing of the program is USD 581.8 of which USD 350 is IDA contributions. The remaining finance is mobilized from USAID, the Netherlands Government, EU, Spain and Italian Development Fund.	National - 157 Woredas in Amhara, Oromia, SNNPR, Tigray, Benishangul-Gumuz, Gambella, Harari and Dire Dawa city administration Five Years starting from 2016.	AGP has strong synergies with the proposed project as it contributes to the implementation of CRGE strategy, through:,inclusion of climate advisory service into the existing extension system, dissemination of yield improving CSA technologies and practices, identification of CSA best practices for dissemination, training of various implementers on CSA,
Sustainable Land Management Program (SLMP),	SLM-2 is a multi-sectoral landscape approach that supports GoE to coordinate efforts on land use and management. It has the objectives of integrated watershed and landscape management, and institutional strengthening, capacity development and knowledge generation. It also includes interventions that seek to increase agricultural productivity, strengthen farmers' resilience to climate change, reduce GHG emissions and increase carbon sequestration. SLMP II financing is USD 107.61 Million of which USD 50 million will be mobilized by the World Bank. The remaining balance will be contributed from GEF including LDCF USD 12.96 million and Norway 42.65 Million USD.	National Implemented in 135 watersheds/ Woredas covering 937 kebeles in the National Regional States of Amhara, Tigray, Oromiya, SNNP, Gambela, and BenshangulGumuz. The project runs from 2014-2019.	SLMP-2 is functional in only Tenta Woreda (Amhara Region) of the 7 Woredas selected for the current Adaptation Fund proposal. Therefore the proposal complements SLMP II as it will be implemented in different geographical areas. As a whole the SLMP-2 is consistent with the proposed project as it contributes to the Sustainable Forest Management and Adaptation strategies. It also contributes to objectives of Climate Change Adaptation, by reducing vulnerability to the adverse impacts of climate change and increasing adaptive capacity. It l addresses some of the vulnerabilities to climate variability and change identified in Ethiopia's NAPA including strengthening/enhancing drought and flood early warning systems; development of small scale irrigation and water harvesting schemes.
Livestock Growth Program	The objective is to improve smallholder incomes and nutritional status through investments in selected livestock value chains. These investments are, in turn, targeted at increased productivity and competitiveness of selected value chains to the benefit of smallholders, including women, and improvements in the quality and diversity of household diets through intake of livestock products	National On going	The proposed project has strong synergies with the LGP through the introduction of climate smart practices.
Agricultural Development	A minimum of three agricultural development agents with a range of technical skills (animal science, plant science,	National	The agricultural development agents provide demand-responsive extension and short-term training services for

Agents and Farmers Training centers	natural resource management) are assigned in each Keble throughout the nation. One farmer training center is also functional at Kebele level. The Agricultural Development Agents and Farmers training centers are financed by Regional Governments budget.	Ongoing	farmers according to their respective skills. Their presence in each Keble helps implement the proposed project components.
Ethiopia's DRM Strategic Programme and Investment Framework (DRM-SPIF)	The Framework involve in (i) developing a system for disaster prevention and early warning; (ii) consulting donors, government agencies, civil society and academic organizations; (iii) preparing an investment program for operationalizing DRM; and (iv) sharing knowledge on DRM best practices	National Ongoing	As DRM-SPIF deals with disaster prevention and early warning and capacity building activities in targetted areas it complements the objective of the proposed project.
Productive Safety Net Program (PSNP)	Currently the Fourth Productive Safety Nets Project (PSNP) is being implemented with the overriding objective of increasing access to safety net and disaster risk management systems, complementary livelihoods services and nutrition support for food insecure households in rural Ethiopia. The programme delivers key services to the targeted households through safety net transfers to chronically food insecure households and support sustainable capacity development and institutional strengthening. Total program financing is 3625 million USD. It is financed by the World Bank (600), USAID (550), DFD (412), EC (130) Canada (115),WFP (100), Ireland (68), Netherlands (68), DANIDA (25), UN Child Fund (25) and Sweden (23) USD.	National The PSNP4 is an ongoing program implementing in 411 Woredas throughout the country. The project runs from 2014 – 2020.	While most of the Woredas proposed under the AF are covered by the PSNP -4, there is the potential for activites in similar areas However, the two projects are complementary as PSNP primarily focuses on social protection and safety nets to counter existing extremes (primarily droughts) and stops households fall into poverty. This AF proposal is seeking to provide integrated resilience and small-scale infrastructure/farm-level investments, for targeted Woredas, to move beyond this to consider future climate change and mainstreaming in local planning.
One WASH National Programme ON E WASH	Sector Wide Approach for water, sanitation and hygiene. The programme engages four ministries- Water Irrigation & Electricity, Health, Education, and Finance & Economic Cooperation. The objective is to increase access to improved water supply and sanitation services for residents in participating woredas/towns and communities. Total financing of the current ONE WASH program is USD 485 million. This will be contributed from the World Bank 205 million, DFID 131.6 million, AfDB 92.1 million, GoE 46.3 million and UNICEF 10 million dollars.	National 2014-2019	The proposals is complementary to the WASH programme, as it extends the concepts to start including climate smart water planning and will consider multi-sector demand for water, as well as providing climate resilient access to water.
Four towns water supply	The Program has the objectives of increasing number of people with access to water and improved sanitation;	The program coversAdama;	This program will explore and promote climate change mitigation and adaptation measures customized to the

and sanitation improvement program	improving utility revenue collection; and improving continuity of service. It will result in new infrastructure in terms of constructed pipeline, storage capacity, treatment capacity, water production, public water kiosks, public latrines, and number of utility staff (30% being women) trained, microenterprises created and staff trained (50% women).	Adwa,Bichena and Gode. The program is planned to be implemented over 48 months beginning in January 2016	vulnerability profile of each sub-project town. These measures have been harmonized with Ethiopia's Nationally Appropriate Mitigation Actions (NAMA) objectives and national Climate Resilient Green Economy strategy. Therefore, this project complements the proposed project by exploring and promoting climate change adaptation measures customized to targeted Woredas.
Ethiopian Forestry Action Program	The program has studied the forest resource base, analysis of the challenges facing planners and resource managers in the forestry sector, institutional and policy issues in forestry sector development and action program for addressing the challenges and the issues	National Ongoing	The program aligns with the proposed project as it aimed at building national capacity to share relevant information on the country's forestry resources.
The Bale Eco-Region Sustainable Management Programme me (BERSMP)	(BERSMP) is a joint Programme me of FARM-Africa and SOS Sahel Ethiopia. The Programme me has been operating in the Bale Massif since the end of 2006 and aims to bring local communities into a central role in sustainable natural resources management supported by government services, across the whole Bale Massif. The Programme me is supported by the Irish, Netherlands and Norwegian embassies.	The Programme me will run in two phases from 2006-2011 and work in 14 woredas. The first phase has started in four priority woredas: Goba, Harena Buluk, Delo Mena and Nensebo.	The Programme me brings local communities into a central role in sustainable natural resources management supported by government services, across the whole Bale Massif. The goal is to mutually enhance the unique biodiversity and vital ecological processes of the Bale Mountains eco- regions, and the social and economic well being of the communities dependent on the eco-region's natural resources. The Programme therefore has direct synergy with the proposed AF project.
Ethiopia's REDD+	The Government created the REDD+ Secretariat to implement REDD+ Readiness Phase (i.e., R-PP implementation) and coordinate all efforts related to REDD+ (forestry and climate change) and to deliver on the green economy vision.	On going National	Ethiopia's REDD+ has direct synergy with the proposed project as it is an integral part of a bigger climate resilient green economy (CRGE). It is aimed at protecting and re-establishing forests for their economic and ecosystem services, including carbon stocks. REDD+ actions are targeted at maintaining existing forests and creating new ones.
The Climate Resilient Green Economy (CRGE) Fast-Track Investments on Agriculture, forest, livestock, water and energy	CRGE: Fast-Track Investments are designed to start implementation of the CRGE in 6 key ministries including Agriculture, forest, livestock and water. The projects have the objective of testing the CRGE Facilities processes and give rapid iterative feedback for implementation modalities on the ground. The aggregated budget was 20.8 Million USD	Implemented at national level in selected Woredas. Ongoing	CRGE FTIs in natural resource sectors were designed to contribute to triple objectives of economic growth, greenhouse gas emission reduction and resilience to the adverse effects of climate change. Sectors are expectedto draw lessons from implementation of these FTIs and build long term strategic plans in line with GTP II planning process to enable sustainable economic growth and reduce poverty. The proposed project can also draw lessons from implementation of the FTIS.
Climate High Level	The Climate High Level Investment Programme me (CHIP) helps to build climate resilience and promote low	2012 – 2016 National	This Programme has synergy with the proposed project as it supports climate institutions building, including financing

Investment Programme me	carbon development through supporting to the Ethiopian Government's Climate Resilient Green Economy financing facility, mainstreaming of climate resilience and low carbon development into three key sectors: Food Security, Forestry and Disaster Risk Management. The Programme was financed by UK with a total budget of 30 million.		fast-track climate investments and support to CRGE Facility
Strategic Climate Institutions Programme me (SCIP)	The overall goal of SCIP is to build organisational capacity within the Government of Ethiopia (GoE), the private sector and civil society to enable Ethiopia to achieve its MDGs and contribute to the improved management of climate change risks and opportunities through increased resilience to current climate variability, adapt to future climate change and capitalize on low carbon growth and carbon sequestration opportunities. The Programme has an approximately GBP 9.7 million DFID/Norway/Denmark-backed fund.	2012 – January 2016 National	The Programme is designed to build Ethiopia's capacity to cope with climate change across the public, private and civil society sectors and to respond to the challenges of transitioning to a climate resilient green economy. Accordingly this Programme aligns with the objectives of the proposed project.
Building the national capacity and knowledge on climate change resilient actions in Ethiopia	This project contributes towards achieving Ethiopia's Climate Resilient Green Economy through capacity building and sustainable land management. The overall financing amount was 10 Million Euro from GCCA. The project was implemented by Ministry of Environment, Forest and Climate Change, and Ministry of Agriculture and Natural Resources,	The project implemented from 2012 to 2016. National	This project has the objective of increasing the awareness and capacity of targeted government institutions, both at federal and regional levels, and the rural population at large, to deal with climate change. Thus it complements the objectives of the proposed project.
Strengthening Climate Information and Early Warning Systems and Support Climate Resilient Development National Adaptation Programme of Action (NAPA)	e Programme contributes to Ethiopia's NAPA priorities (Strengthening/enhancing drought and flood early warning systems in Ethiopia; Capacity building Programme for climate change adaptation in Ethiopia). This initiative supports the National Climate Resilient Green Growth Strategy, and will result in strengthening the observational and analytical capacity of the national hydro-met services and its early warning system, and supporting the disaster risk management and development planning agencies in their effort to adapt to climate change. Total project financing required was USD 37.8 million of which USD 4.5 from GEF/LDCF, USD 13 million from UNDP and the reaming USD 19.7 million from other sources. Implementing institutions include the National Metrological Service Agency, Ministry of Agriculture and Natural Resources, Ministry of Water, Irrigation and Electricity and Regional Governments and the Addis	The project is being implemented in 2013 – 2017 National	The project closely aligned with the current project objectives as it promotes resilient to climate change at the national and local levels. This projects aims at strengthening the capacity of the Government of Ethiopia to observe, analyse and forecast climate information to enhance their early warning systems and for climate resilient development and adaptation to climate change. Thus it complements the components of the current project implementation.

	Ababa University.		
Promoting Autonomous Adaptation at the community level in Ethiopia	The project aimed at to be a catalyst for promoting national action in Ethiopia that builds the resilience of local communities and their capacity to innovate and manage climate change opportunities and risks. Thus, the communities themselves—including both men and women—can tailor adaptation technologies and techniques to their own needs. The project promotes the positive impact of bringing together climate change adaptation techniques and technologies through an area-based integrated planning and implementation process on local communities. It is LDCF's grant of USD 5.3 million and implementing agency is Ministry of Environment, Forest and Climate Change.	The project covers eight Woredas in each of the four main regions (Amhara, Oromiya, Tigray and SNNP).	This project has direct synergy with the current project as it has the objectives of achieving specific outcomes such as strengthened institutional capacities, access to appropriate technologies, climate risk reduction, and learning and scaling-up of adaptation efforts.
Coping with Drought and Climate Change	Specifically, the project objective is to develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers, particularly women and children to current and future climate shocks.	Implemented in Kalu Woreda in Amhara Region Completed March 2009-December 2012	This support engages in developing and piloting a range of coping mechanisms for reducing the vulnerability of farmers and pastoralists to future climate shocks. Accordingly the Fund has direct synergy with the proposed project
Green Climate Fund (GCF) (Readiness program support)	The overall objective of this grant is to enhance Ethiopia's chance of accessing the Green Climate Fund as potential source of climate finance which can leverage domestic investment to build a climate resilient and low carbon middle income economy.	Federal Up to July 2017	This program is consistent with the objectives of the proposed project. It aims at strengthening the institutional capacities of the Ministry of Environment, Forest and Climate Change (MEFCC) as an NDA of Ethiopia, to effectively fulfill its roles and responsibilities related with the Fund, engage with regional, national & sub-national governments, civil society and private sector stakeholders as well as to develop country program through multi-stakeholders engagement process.
Enabling pastoral communities to adapt to climate change and restoring rangeland environments project	The overall project goals include: Mainstream climate change mitigation and adaptation options for pastoralists into national, sub-national and district development frameworks; Enhance the capacity of government agencies and pastoralist community institutions to effectively respond to the risks and challenges of climate change and boost pastoral communities' coping mechanisms and capacity for sustainable livelihoods. It is a joint funding project financed by UN agencies including FAO, UNDP and UNEP. Total financing budget	The project targeted communities in Afar, Somali, SNNPR and Oromia Regional states and involved pastoral communities, central and local	This project was designed to bring alternative income generation opportunities; improving rangeland management; raising awareness on adaptation options; empowering pastoral communities to better participate in decision making related to their livelihoods and integrating these options into relevant plans and policies. Accordingly it has direct synergy with the current proposal.

	was USD 4 million. National implementer institutions are Ministry of Finance and Economic on, Ministry of Environment, Forest and Climate Change.	government, civil society and the private sector. Oct 2009 - 31 Mar 2013 Concluded project	
Green Climate Fund proposal	Responding to the increasing threat of drought: building the resilience of the most vulnerable communities through Climate-smart and Landscape-based investments	Selected Woredas nationally. Proposal stage.	There are strong synergies to the existing Adaptation Fund proposal, but there has been an explicit strategy to pick different woredas in the two projects, and the AF project has a stronger focus on future climate resilience, monitoring and learning.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

A key element of this proposal is the use of an iterative climate risk management approach (adaptive management). The proposal includes an explicit component targeted at learning, over and above M&E activities, to provide information to improve future decisions as part of an iterative adaptation planning. The selection of different agro-climatic zones in the project maximises this learning, by allowing lessons from different regions to be collated and compared, in terms of bio-physical but also institutional and social factors, thus enabling more targeted interventions in the future. The project will therefore generate knowledge and learning that will contribute significantly to the building of resilience of rural communities to climate change in Ethiopia.

There are a set of monitoring and research activities to learn from the project, as well as further information gathering.

This information will be captured and disseminated through the knowledge management components of the project. The CRGE facility is developing a new communication unit that will advise on communication and public relations, and this will provide the central point for collating and disseminating the results of the project. This complements the various consultations, awareness campaigns, and direct involvement in the integrated land and water management activities that will be undertaken in the Kebeles.

Results from the project will be disseminated within and beyond the project areas through existing information sharing networks and forums. The CRGE Facility in collaboration with the executing entities will identify and participate through its structures, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. Furthermore, the CRGE and the Ministries will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future programmes. A two-way flow of information will be maintained between this project and others of a similar focus.

Action research will be integrated throughout the project, with full engagement of communities and research and development partners, allowing their recommendations to improve future approaches. The lead ministries already regularly engage with academic/research institutions, and these institutional linkages will be reinforced during project implementation. In this regard, relevant development-oriented research will be conducted to identify means for the creation or strengthening of knowledge, collective learning processes, or institutions.

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The entire project follows a demand-driven bottom-up approach - in which communities steer affairs, have a voice in determining priorities and are actively involved in project identification, planning, development and implementation

A wide range of stakeholders, particularly local communities, have been consulted during preparation of the project concept. The consultations will intensify during the development of the full proposal and a plan will be developed to communicate and consult with stakeholders throughout the lifetime of the project.

The risks of gender inequality have been considered in the project – and mitigating actions considered (see section B). These were applied during consultation and will be taken up during the project implementation.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Ethiopia is one the world's more vulnerable countries, and is particularly affected by high variability in annual and seasonal rainfall between years.
The proposed project specifically advances climate adaptation measures proposed in Ethiopia's Climate Resilient Green Economy Strategy and specifically the options recommended in the CRGE Climate Resilience Strategies for i) Agriculture and ii) Water.

Component 1. Climate smart resilient project design and plans

Baseline: (without AF Proposal): Without the AF project, any interventions in the proposed intervention areas will continue as small-scale and stand-alone projects, that lack integration and miss important opportunities for synergies. They also will not consider the impact of future climate change and the need to include consideration in the design of community level interventions.

Adaptation interventions (with AF funding): The AF funding will be used to develop a climate-smart approach that builds resilience to current climate variability and future climate change. The integrated approach, grounded in local community development plans, will enable interventions that are consistent with the national CRGE strategy to be implemented at the local level.

Component 2: Climate resilient integrated water resource use

Baseline: (without AF Proposal): Without the AF project, the existing problems of drought susceptibility will continue in the proposed intervention areas. The high levels of vulnerability will continue, and the Kebeles will experience periodic climate shocks that lead to major health impacts, decreased agricultural yields, and force households to sell valuable assets (notably livestock) to survive. These will reduce incomes and household assets, and the likely increase in variability under climate change could exceed the coping capacity of communities to recover fully after events. Under this baseline, there will also continue to be a reliance on humanitarian responses.

Adaptation interventions (with AF funding): The AF funding will be used to invest in climate smart integrated water management, providing a reliable source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, but doing so in a way that introduces green technologies and ensures long-term climate resilience. The funding will also shift communities from a reactive response, with high reliance on food aid and social protection, towards more resilience. The improved management of water will increase storage capacity so that farming communities will have water to irrigate crops and women spend less time fetching water.

Component 3. Climate smart agriculture – land – water - forest integration

Baseline: (without AF Proposal): Without the AF project, the existing problems of soil erosion and degradation, as well as drought susceptibility will continue in the proposed intervention areas. The high levels of social and climatic vulnerability (the adaptation deficit) in the Kebeles will continue, and soil degradation will reduce agricultural yields and household incomes, increase food insecurity and maintain the dependence on social protection and humanitarian support. This is likely to lead to increasing rural poverty and migration towards urban centres. These impacts have the potential to increase under climate change.

Adaptation interventions (with AF funding): The AF funding will be used to invest in integrated climate smart agriculture, as low-regret adaptation that helps reduce current climate vulnerability and builds resilience to future climate change. The options will improve the watershed, support the sustainability of agricultural practices, reduced soil erosion and increase water management, and reduce environmental degradation. It will also reduce greenhouse gas emissions. This will enhance agricultural production and reduce vulnerability, increase incomes, and will have ancillary benefits on the environment (as land-water-forest integrated solutions). The proposed project will target farmers and communities, reducing the adaptation deficit, and avoiding the costs of land degradation while enhancing incomes from production benefits. Through the use of forests and land restoration, it will also deliver improved ecosystem services.

Component 4 Resilient livelihood diversification

Baseline: (without AF Proposal): Without the AF project, rural communities in the intervention areas will continue to be exposed to the periodic climatic shocks that impact on health and livelihoods. These will be exacerbated by the under-developed markets for non-agricultural goods, the lack of electricity and under-skilled workforce, all of which are barriers to moving people out of subsistence agriculture. This situation will potentially worsen under climate change, as variability increases and the potential frequency and severity of shocks changes. This in turn makes local communities food insecure, with the need for humanitarian assistance and social protection nets that drain national resources and expose communities to a series of shocks that stops them graduating out of poverty.

Adaptation interventions (with AF funding): The AF funding will increase the livelihood security of vulnerable households living in these areas. This is consistent with the national CR Strategy which aims to increase resilience through diversification into other agricultural products (e.g. land fruits and vegetables), as well as goats, sheep and poultry, as well as encouraging beekeeping as a critical activity for ecosystem based livelihoods (forests). The proposed interventions will support local communities who currently depend on farming to increase and diversify their economic activities by developing markets and building the capacity of target beneficiaries. The funding is not directed to grants but on the facilitation of alternative livelihood activities, and increasing access to existing local micro-finance institutions. It will also provide support for market system value chain) development. This will ensure new sources of income for vulnerable communities. The direct targeting of poor women will enable this group to diversify out of subsistence agriculture and obtain the skills and support needed to become economically productive and food secure.

Component 5. Capacity building, monitoring, evaluation and learning

Baseline: (without AF Proposal): The relevant local authorities currently lack the capacity and expertise to support and scale up climate adaptation. Without the project, it is likely that adaptation planning will be slow, with limited development of community based approaches and dissemination of best practice. The most vulnerable communities engaged in agriculture are likely to continue unsustainable farming practices with increasing exposure to climate change risks while economic opportunities remain limited.

Adaptation interventions (with AF funding): With AF funding, community based adaptation and best practices will be implemented during project, and these will be effectively shared and communicated at the local level, but also up to key decision makers so that they can be replicated in other parts of the country. The inclusion of learning components will ensure the lessons from the project are monitored, compiled and used to inform future adaptation decision making, using an iterative,

learning based approach, that will also serve as a model for similar activities in other areas.

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.

At a strategic level, the project has been designed to align to the national development and growth objectives of the GTP, and also the strategic priorities and actions identified in the CRGE strategy (national and sector strategies). It targets low regret adaptation options that provide immediate benefits and build resilience for the future, with a strong element of capacity building and learning that will ensure outcome sustainability. The strong emphasis on monitoring and evaluation (including the use of iterative and learning) will ensure impacts and results are sustained.

The proposed project has been designed to bring about sustainable transformation in the resilience of vulnerable communities. The project promotes collaborative approaches for the development of localised solutions. Through participation in learning and decision making, communities will build sustainable capacity. Furthermore, their involvement in the critical decisions will increase their commitment to making their solutions work, and to assuming responsibility after project completion. The goal is that, by the end of the project duration, the selected communities will be able to continually adapt to changes in climate on a self-sustaining basis, with limited government assistance. Woreda-level administration will have been strengthened to carry out integrated development planning and delivery, and to be able to continuously provide relevant technical assistance and services to the communities.

The project will enable integrated development planning and build delivery capacity at the local level. The project services will be delivered using existing government and community structures. As a result, some technical support will continue to be provided by the government (federal, regional and local) after the project period, although steps will be taken to encourage these to be delivered by the market and community-based organisations wherever practical. Furthermore, the participatory approach will build ownership of the project in these local communities. By engaging communities in the design and implementation of the project, the project will build capacity of local people to continue adapting to climate change risks. This will be strengthened by the use of Local Community Development Officers, as these community members are best placed to lead project implementation at the local level, and will be critical in the continuation of the benefits after the project has ended.

The project will also seek to effectively eliminate or at least reduce the barriers that previously prevented these services from being provided by the market or through community-based collaboration, thereby delivering long-term benefits. These barriers include information asymmetry (the fact that smallholder farmers are not

well informed of risks, or the practices and technologies available to help reduce risks), risk aversion (that constraints on investments by smallholder farmers), limited ability of smallholder farmers to pay, and limited supply of technologies and inputs.

Capacity is expected to be built under the project for long-term adoption of disaster risk management practices. The systems for early warning to be set up will become an integral part of the existing structures in Ethiopia. In developing the insurance schemes, the project will work closely with the private sector and other actors in the financial services sector to ensure commercial viability.

The project will put in place a robust and effective knowledge management and communication structure. Through this, the goals, actions and results of the project will be continuously analysed and disseminated. This recognises that beneficiaries and other stakeholders who understand the goals and results of the project will be much more willing to take ownership of and participate in on-going activities beyond the project lifecycle.

By the end of the project, it will have accumulated extensive assets in the form of soft assets (administrative procedures for quality control, monitoring, evaluation, knowledge management and communication) and hard assets (equipment and infrastructures). These will be transferred to relevant government institutions at the appropriate level (federal, regional or local) in accordance with applicable government regulations. Infrastructures installed in the Woredas will be handed over to local administrations or community-based organisations.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

A separate environment and social managment framework has been produced, with a detailed analysis of environmental and social impacts and how they will be addressed. This is attached as an annex to the proposal.

The overarching strategy of the project is to manage the risks from recurring droughts, floods, and erosion – both from current risks and under future climate change - through an integrated water, agriculture and natural resource management nexus approach. enhance climate smart integrated water management, providing a reliable source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, managing the watershed through physical and biological interventions such as bunds, trenches, terraces and afforestation and reforestation practices.

The major social benefits of the project include increased productivity of livelihoods and their capacity to adapt to climate change , provision of employment opportunities to local populations, provision of direct employment during the construction phase and at operational stage of subprojects such as ponds

construction, access roads to water facilities, irrigation sub projects and indirect employment through aspects such as operation of water facilities and maintenance activities which will offer greater job opportunity over a longer period of time.

The project has an explicit learning component that intends to build the capacity of local communities and will provide opportunities for scaling up of innovative approaches and interventions in off project sites. This aspect will generate substantial social benefits in terms of enhancing local planning capacity , community involvement in decision making and will benefit wider communities later when innovative approaches are scaled up.

Water supply systems under this program will ensure that the general public in the targeted areas have access to clean water supply, a pre-requisite for health and sanitation. In promoting irrigation practice, the project will offer opportunities for high value crop productions that will increase the income of rural farmers resulting in enhancing their quality of life.

Improved animal husbandry along with the implementation of safe guard measures will enhance the productivity of farmers increasing their income and accruing health benefits from consuming the various products of domestic animals. This is complemented with a low carbon, climate resilient livelihoods diversification interventions. The project is to be implemented in climate sensitive and vulnerable areas of Ethiopia. The value chain approach that ensures investment in production is complemented with efforts to ensure access to markets, will greatly benefit local communities in securing sustained income.

Increased access to credit facilities will enhance the productive capacity of farmers, while conservation measures will result in increasing water yield of wells and springs, soil fertility improvement which will contribute to increased production and improved health of communities. Agro-forestry will increase the resilience of farmers due to the availability of multiple crops in their fields.

The **environmental benefits** of planned conservation structures include protection of soil against damage due to excessive runoff, increase in yield of springs and water wells and soil erosion will be avoided. Better productivity on less tilled land due to improved seeds will also contribute to soil conservation. Conservation structures are basically environment enhancing projects and agro-forestry provides sheds to plants, conserve water and protects from soil erosion.

The potential adverse impacts identified include potential risk of import of seeds of alien species along with basic seeds, potential impact resulting from the expropriation of land for conservation and planting activities; potential social impact as a result of change of land use such as changing from mono crop production to agro-forestry , possible farmers resistance due to long gestation period of fruit trees to accrue benefits, generation of solid waste (hazardous and non hazardous) and site level infrastructure construction, competition in water use between domestic and

irrigation use, water logging and salinization due to irrigation mal practice and impacts of spraying of toxic chemical fertilizers and herbicides .

A summary of potential environmental and social impacts and proposed mitigation measures for clustered project activities under water, agriculture and conservation sectors is provided below. The details are provided in the ESMF report.

Project component and activities	Potential environmental/social impacts/risks	Significane of Impacts	Proposed Mitigation Measures
All planning activities such as " Develop the integrated water, agriculture-land-ecosystem and livelihood diversification plans with the communities "	Inappropriate plans , site and technology selection may negatively impact communities and the environment: Plans that require displacement of people; Water facilities located near burial places resulting in health hazards; Interventions located in sensitive areas resulting in destruction of heritages, interference in wild life movements..etc	The probability of occurrence is low due to the planning process adopted which involves a series of consultations. In case there happens to be a laps in planning and implementation follows the plan, there is still a possibility of applying mitigation measures. Thus the severity is low to medium. The significance is low to medium.	The following should be noted with regards to planning, priority setting and site selection: The plan should indicate that none of the interventions should result in the displacement of people; The plan should indicate appropriate of implementation such as building of the water harvesting and erosion control structures to be undertaken during the dry season to reduce erosion impacts; Project activity sites must be outside: protected areas, biodiversity hotspot, natural and historical heritage sites
All activities related to shallow well drilling; Installing pump and electro-mechanical fixtures	a) ecrease in surface and/or groundwater water quality as a result of drilling and operational activities; b) umping of construction waste, oil spilling of machineries, solid disposal etc. c) xcessive use of groundwater leading to draw down of water table and possible land subsidence. d) mpact on safety of community members due to exposure to fixtures	The probability of occurrence is medium due to the nature of drilling activities involving oil and chemical based machineries and operations. Although oils and chemicals used in drilling are not fatal the health impacts can be serious. Thus the severity is medium to high. The significance is medium.	Designated areas for storage of fuels, oils, chemicals or other hazardous liquids Refueling to be undertaken in areas away from water systems. Pump tests and groundwater quality studies should be carried out to determine suitability of groundwater and the safe yield. Ensure all electrical and mechanical fixtures fulfill safety standards, no exposed electrical fixtures. Ensure all users of facilities are aware of the dangers and post warning signs at appropriate places

All activities related to Building physical moisture and soil conservation structures a**nd** Building biological conservation measures .	Potential for use of degraded communal land for rehabilitation, with little consultation of communities resulting in loss of access to free grazing land. Long-term anticipated conflict related to benefit sharing, which will arise as a result of the positive natural resource rehabilitation outcomes of the project's intervention Potential impact resulting from the expropriation of land for conservation and planting activities;	The probability of expropriation of land, farmers resistance and happening is low while change of land use will happen as a consequence of agro-forestry sub project implementation.	here should be a well-structured consultation process and a practice undertaking conservation measures including use of communal lands. here should be a community lead and owned bylaw, which clearly stipulates benefit sharing and is endorsed by the community. o the extent possible, the site for conservation structures should be on communal land and there should be extensive consultation and buy-in from the community for the intended use of the communal land.
All activities related to fruits and vegetable production ;Supporting forage seed supply. Promoting small chicken-egg hatcheries And distribution of imported (more resilient) sheep and goat breeds	Possible farmers resistance due to long gestation period of fruit trees to accrue benefits Potential risk of import of seeds of alien invasive species along with seeds and seedlings' Generation of solid waste (hazardous and non hazardous) and impacts of site level infrastructure construction; solid waste and pollutants (including methane) associated to the production of livestock, poultry and apiculture Impacts related to quality of seeds adulteration Impacts related to spread of livestock and chicken disease Impacts related to Import of exotic foreign livestock breeds	*Probability of impact occurrence is* Low, given the benefits of fruits and vegetables production is widely recognized in rural Ethiopia. *Potential impact severity is* low *Probability of impact* ***occurrence is*** Low to medium and if invasive species seeds happen to get their way in to the rural environment the impact may be severe, .Thus the significance of the impact is medium to high. *Probability of impact occurrence is* medium due to already existing culture of livestock and poultry management in the rural areas. However great care should be exercised in importation of seeds and	Conduct prior consultation with farmers on the benefits fruit trees to supplement their income. During seed dissemination stage ensure the quality of seeds and ensure that no alien invasive seed species are disseminated Solid waste (hazardous and non hazardous) should be managed as per the requirements of Ethiopia's Solid Waste Management Proclamation (517/2007); Used oil traps and other effluent/discharge management interventions should be put in place; Dust suppression technique should be in place; Provide workers operating in these areas personal protective equipment, including mufflers, as per the requirements stipulated in the Labour Proclamation (No. 377/2003). During seed dissemination stage ensure the quality of seeds and ensure that no alien invasive seed species are disseminated

		exotic breeds . ***Potential impact severity for land expropriation is*** **Medium** since there is already a strong system and legally stipulated requirement for the compensation of expropriated land	

An assessment against the checklist of environmental and social principles is presented in the table below.

Table 8. Checklist of environment and social principles

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	No further assessment required for compliance	The project components and outputs are in line with many of the provisions of the Constitution of the Federal Democratic Republic of Ethiopia.
Access and Equity	Compliance Assessment during implementation may be required	
Marginalized and Vulnerable Groups	Compliance Assessment during implementation may be required	
Human Rights	No further assessment required for compliance	The constitution and the local laws respect human rights
Gender Equity and Women's Empowerment	No further assessment required for compliance	There are strong local community organizations that can ensure gender equity
Core Labour Rights	No further assessment required for compliance	Labor Proclamation (Proclamation No. 377/2003) protects the rights of contract employees and contains similar provisions with that of **AF Principle 6.**.
Indigenous Peoples	No further assessment required for compliance	There is no specific national legislation on this aspect as the Ethiopian population is indigenous. In the Ethiopian context this may not be relevant but the provisions are relevant to any rural community in the selected project areas.
Involuntary Resettlement	No further assessment required for compliance	The project does not require involuntary resettlement
Protection of Natural Habitats	No further assessment required for compliance	The criteria for section of project sites forbids locating project activities in the vicinity of project activities
Conservation of Biological Diversity	No further assessment required for compliance	
Climate Change	No further assessment required for compliance	Project activities do not contribute climate change due to the nature of the projects.
Pollution Prevention and Resource Efficiency	No further assessment required for compliance	

Public Health	No further assessment required for compliance	Public hath enhancing measures such as clan water supply
Physical and Cultural Heritage	No further assessment required for compliance	The criteria for section of project sites forbids locating project activities in the vicinity of project activities
Lands and Soil Conservation	No further assessment required for compliance	Components of the project include lands and soil conservation measures

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

As an accredited direct access entity, the Ministtry of Finance and Economic Cooperation (MOFEC) will be the implementing entity for this project. There are four Federal Ministries of the GoE that will be executing entities, namely the Ministry of Agriculture and Natural Resources (MOANR), the Ministry of Livestock and Fishery (MOLF), the Ministry of Environment, Forest and Climate Change (MEFCC)[91], and the Ministry of Water, Irrigation and Electricity (MOWIE). These ministries have committed to work together under the overall coordination and leadership from the CRGE Facility[92] under MOFEC.The Facility will ensure that the executing ministries will conviene periodically to review the project implementation progress, exchange information and take timely actions on issues that will have negative impact on project delivery.

The project will be implemented through the regular agricultural extension, DRM, livestock, natural resource and other government structures involving farmers and farmer's organisations, thus helping to create a sense of ownership at all levels.While the project is based on multisector and integrated approaches, the Ministries will work on a centrally coordinated basis with clear and specific responsibilities delegated to individual Ministries. Generally, all agriculture and natural resource related outputs will be delivered by MOANR, water and energy related outputs by MOWIE, forest and crosscutting climate change outputs by MEFCC, and livestock by MOLF. All work will be jointly planned and implemented under the coordination of the Woreda Administration Office.

The executing ministries will provide project management support and hire a Technical Officer who will be responsible for provision of technical support, planning, periodic monitoring, supervison and periodic reporting. They will also avail office space, logistics and and other facilities for project implementation. The federal executing ministries will closely collaborate with their respective sector bureau at regional level. Five project officers (one per region) will be hired to coordinate, closely monitor, report and provide technical support to Woreda level experts and development agents at kebele level. As this is the actual level at which project activities will be executed and that interaction with the direct beneficiaries and stakeholders occurs, priority will be given to assigning the Woreda Coordination with the necessary human resources, budget and logistical responsibilities. One expert will be hired for the seven project target Woredas who will follow up, coordinate and

[91] MEFCC was previously the Ministry of Environment and Forestry, which was created as a result of the former Environment Protection Authority (EPA) becoming a full Ministry in 2013.

[92] The CRGEFacility is an entity established under MOFEC to lead and coordinate mobilization, allocation and management of climate finance from bilateral, multilateral and domestic sources. It is managed and lead by a management committee comprised of high officials represented from key CRGE sectors and its day to day operations are executed by a secretariat comprised of of senior experts housed in MOFEC and MEFCC.

report the day-to-day operations of the project. A Community Development Agent (CDA) will be appointed for each of the 14 Kebeles. These agents will be responsible for advisory support and extensions services to local beneficiaries (mainly farmers). CDAs will be responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities. They will also work within each Kebele with the village committees to engage in project implementation, their responsibilities including but not being limited to beneficiary selection, mobilising community contribution and representing the community in project management.

The CRGE Facility will ensure that fund received from the Adaptation Fund will be disbursed to federal, regional and Woreda level executing entities through the already established channel of disbursement. The federal executing entities will recive funds directly from MOFEC for activities which they directly execute as defined in the project proposal. Similarly, the regional sector Bureaus will receive fund through Bureau of Finance and Economic Development (BOFED) for activities that they will directly deliver. The lions-share of the fund will be disbursed to BOFEDs and then to Woreda Offices of Finance and Economic Development (WOFED) for the implementation of project activities on the ground. Dedicated project Finance Officers will be assigned atatthe CRGE Facility,BOFEDs and WOFED levels. The Federal and regional executing entities will also assign finance expert who will be responsible for compiling financial reports, facilate account auditing, etc.

Management arrangements

The project will be overseen by the CRGE Facility Management Committee, which will assume a project steering committee role. The committee will discuss the project during its regular meeting (once per quarter), provides guidance and support. The CRGE Facility can request an extraordinary meeting of the management committee when there are urgent and important issues.

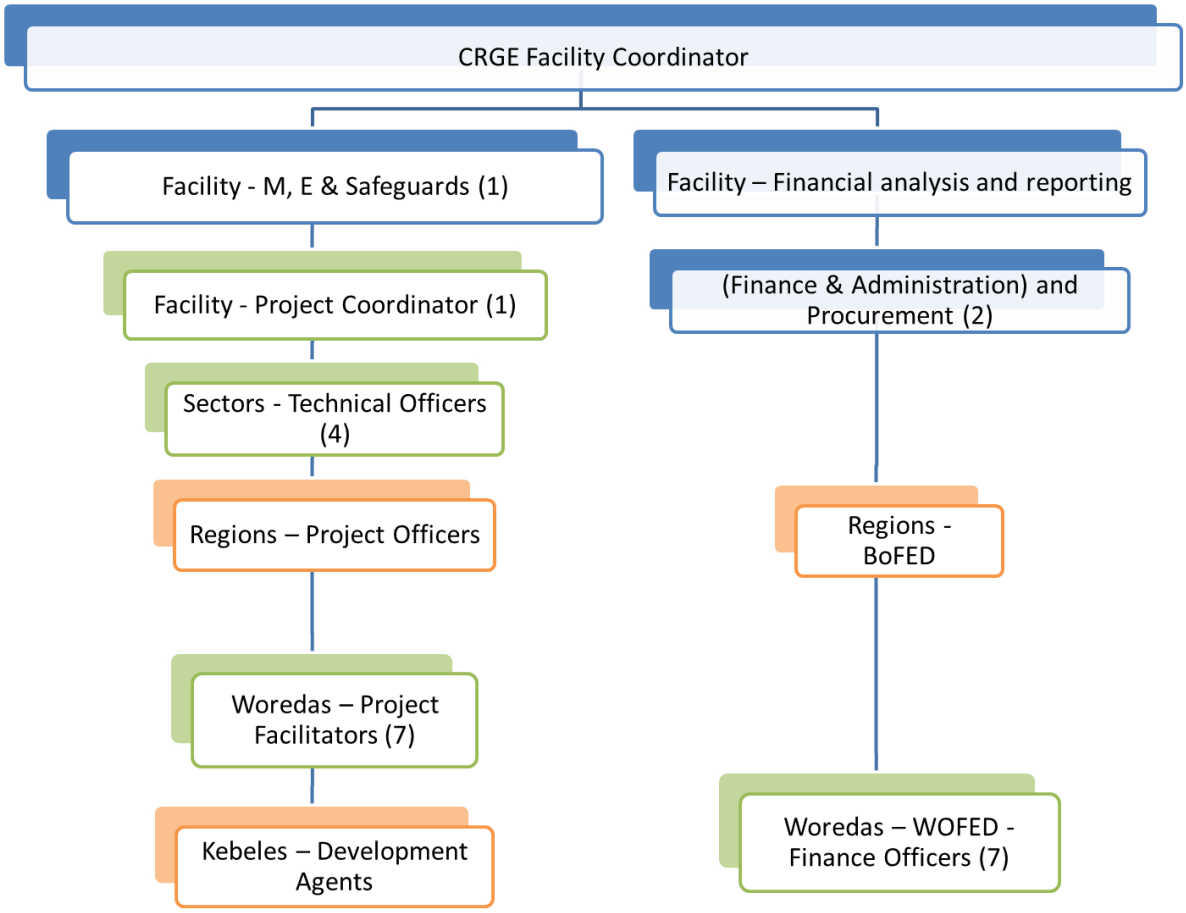
A small project management unit (PMU) will be set up in MOFEC in the CRGE facility. This will comprise a project co-ordinator, a monitoring and evaluation officer and a financial and administrative officer. It will also include a Finance and Administration as well as a procurement officer. The PMU will be responsible for the overall coordination and leadership, including preparation of annual/biannual work plans, and their implementation, monitoring and supervision.

At regional level, the existing CRGE Steering committee, which is co-chaired by Bureau of Environment and Forest and Bureau of Finance and Economic Development (BOFED), will oversight the project implementation. The committee will discuss the project during its quarterly meeting and will provide support and guidance to the executing sector bureaus.

At Woreda level, a committee comprised of heads of the agriculture, forest, water and energy and livestock offices and chaired by the Woreda Administrator will closely supervise and oversight the project.

Local stakeholders and community members will have a key role to play in the implementation and monitoring of the project. Consultations with all stakeholders will be organised to ensure there is clear understanding of the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines. Community representation and engagement will be coordinated by Kebele (village) Committees.

The overall project management structure is shown below.



Financial arrangements

The financial management and procurement of this project will be guided by the public finance management and public procurement regulation of the Government of the Federal Democratic Republic of Ethiopia, which is compliant with international standards,

Project finance will flow to the executing entities in accordance with the Financial disbursement arrangement defined for the CRGE Facility, which is consistent with the Channel One fund flow arrangement of MOFEC. After receiving funds, the Facility will transfer necessary amounts to executing entities at regional and federal levels. The Federal level executing entities will receive funds from the CRGE Facility National Account directly. For Regional executing entities, funds will be transferred to their respective BOFEDs on a regular basis. The project finance will be subject to the financial regulations and management (inducing auditing) of the government of Ethiopia.

Project finance will be dispersed based on an approved Annual or Biannual Work Plan. The utilisation of funds will be monitored through an internal control framework, which depicts the funds transfer and reporting channels; it shows that funds received by a project account at the CRGE Facility are then channelled through the government structure - federal, regional and Woreda - and reported back through the same channels. This government channel has a dedicated financial structure staffed with over 1,000 finance professionals, who will be responsible for fiduciary assurance and facilitation of reporting.

Procurement of goods, services and works will be executed at different levels based on the nature, complexity and size of requirements. Annual Project Procurement Plans will be prepared, clearly specifying who is responsible for each procurement. Typically, all international and bulk procurement will be handled at federal levels and delivered to the project site concerned. Generally, the Ethiopian Federal Government Procurement and Property Administration Proclamation No. 649/2009 that entered into force on 9th day of September 2009, and Federal Government Public Procurement Directive issued by the Minister of Finance and Economic Development (as MOFEC was previously called) will be applied to any procurement related issues. The Proclamation and Directive aims to ensure that public procurement promotes value-for-money, and is carried out fairly, openly and without discriminating against any person or firm. The procurement and property administration proclamation and public procurement directives are compliant with international standards, including those of the World Bank. The Proclamation, Directive, and the Manual stipulate the sanctions to apply in the event of non-compliance by any involved party. Compliance with the Manual along with the Proclamation and Directive is a mandatory requirement for all public bodies.

B. Describe the measures for financial and project / programme risk management.

The CRGE Operations Manual sets out the risk management process for the facility overall. For projects and programmes, standard practice is to identify preventable, strategy and external risks, and identify mitigation measures to minimise these. This has been carried out for the proposed project and is shown below.

Table 9. Risks, Scoring and Mitigation Actions.

No	Risks	Risk Level	Mitigation
1	Low awareness and acceptance of the need to engage in climate change adaptation among officials of the Federal, Regional and Woreda level limits the support for action on climate change within key sectors.	Low	The implementation of CRGE strategy is overseen and supported by top government officials, led by the Office of the Prime Minister. This has helped to bring together the various sectors in the process. In addition sector ministries are required to integrate CRGE related activities in to GTP II and their annual budget. The project will build awareness of officials at all levels through consultation and effective advocacy.
2	Lack of project management capacity at Woreda and Kebele level. Most Government projects are managed at Federal and Regional level. While this project will be implemented at Wereda and Keble level there could be human and management capacity shortage.	Low	Lessons were drawn from the CRGE Fast Track Investment Projects and appropriate measures will be taken to establish and strengthen project management capacity. Strong project management staff will be assigned and rigorous support from Federal and Regional sector bureaus and the CRGE Facility will be given.
3	Lack of information and commitment for capacity building and adaptation in targeted Woredas/Kebeles.	Low	The project components and associated activities selection will consider exhaustively the available data on targeted intervention Kebeles. To this end a feasibility assessment of each Woreda and Kebele will be undertaken and informative data collected.
4	Insufficient committments from Woreda to support the implementation of project components. The project component implementations require significant level of human resources.	Medium	The project will use existing institutional arrangements. Thus the additional project implementation cost will be low. It will be supported by ongoing agricultural extension, DRM, livestock, natural resource and other government structures and resources as well as farmers and farmer's organizations. This will mitigate the challenge for the implementation of the project.
5	Failure to crate ownership of the project at local level results in communities' resistance.	Medium	Important institutional arrangements in organizing and sensitizing communities are already present at Kebele level. Threre is existing experience of participating in communal practices, such as watershed management, participatory forest management, etc. The project will use such opportunities to create ownership of the project. The project will use Development Agents in the implementation process.
6	Price fluctuation and understated cost estimate of inputs and technology products price could raise cost of implementation and lead to budgetary	Low	The project cost design will be based on reliable price of inputs and technology products. The Project will establish a financial risk management strategy and

	constraints. The problem could sustain in post project life.		regularly monitor and audit accounts.
7	Delays in the disbursement of funds, procurement and Institutional inefficiencies (lengthy approval processes etc.) delay the resulting in delayed project implementation.	Low	The CRGE Financial Manual will be developed and training will be given to permanent and temporary staff at all levels. The financial flow and administration will follow the government regular channel. Additional finance and administrative officers will be recruited to ensure effective mobilization of funds, contracting, monitoring, and financial reporting.
8	Failure to adopt a holistic approach necessary for this type of project. Traditionally, projects were developed by a single Ministry and implement by the same from Federal to Region and Woreda. This project follows a landscape based-integrated approach and requires engagement of different stakeholders at macro, meso and micro levels.	Medium	The CRGE Facility has acquired lessons from the Fast Track Investments implementation and will coordinate r the implementation of this project. The Facility will assign dedicated staff. This team will regularly communicate with the project coordination units of the executing ministries and Bureaus.
9	Low technical knowhow of farmers and communities to use modern technologies. The project will introduce green technologies such as extracting of water and small scale irrigation using solar energy. These and other technologies require adopting the new technologies and associated practices.	Low	Technical support to the intended project beneficiaries will be provided through the existing government extension system. This will include, knowledge transfer on the technologies and improved practices through workshops, exchange visits, demonstration of on farm practices (e.g. using Farmers Training Centers), and training of trainers. It will also focus on capacity building on irrigation practices, farming technologies, livestock feed preparation, cut and carry, existing watershed management guidelines, and soil and water conservation practices. Proper training will also be given to government stakeholders and implementing institutions on trouble shooting, operation and maintenance of the solar PVs and the installed surface pumps.
10	The proposed fails to bring the intended results. The project has a number of components, which are strongly inter-related, and will be introduced in an integrated approach. The implementation of these components is expected to diversify and strengthen livelihoods and sources of income for vulnerable people in targeted areas. Full realization of the expected results of the project could be affected by improper selection of relevant areas and response to address communities' vulnerability.	Medium	The project will address this risk through a number of actions. The first is compiling and examining vulnerability factors of target Kebeles. This will help to undertake relevant natural resource management approaches that, introduced in a coherent and adaptive way. The second is the rigorous approach to selection of participating communities, which ensures that the viability of the approaches has at the outset been validated in the local contexts. In realizing these pre-feasibility assessment has been done during the project design.

11	Communities low awareness of the climate change and less enthusiastic to respond to the dangers brought by climate change. Unless beneficiaries have full awareness about the impact of climate change it is difficult to gain their commitment in the proposed action aimed at building resilience and adaptation.	Medium	The project will start by identifying the severity of communities' vulnerability through engagements. The project will introduce participative mechanisms to understand the impact of climate change and integrate into local planing. It will build awareness through a series of targeted activities and employs Kebele level staff to promote activities.
12	Weak institutional arrangement at Regional and Woreda level to facilitate the implementation of the project. The establishment of CRGE unit at Regions is not fully realized. Some Ministries such as Ministry of Environment, Forest and Climate Change have no corresponding offices at Woredal level. This may hamper the efficient implementation of the project.	Low	This risk will be mitigated by creating strong project coordination and governance arrangements. The project governance structure will ensure that cross-sectoral coordination and collaboration will be established. The CRGE Units at Federal level will create smooth linkage at Regional and Woreda level existing institutions. The Woreda Agricultural office which is represented by Development Agents at Kebel level will take the lead and coordination responsibility. It is through this facilitation of the collaboration of the existing institutions that the project will manage this risk and contribute to its ultimate success
13	Lack of co-ordination with other climate change projects limits the capacity of implementing agency to learn from and build on the experiences of related projects.	Low	The project has reviewed lessons from other projects and has discussed the projects with relevant Ministrires and Woredas. The CRGE Facility in collaboration with Ministry of Environment, Forest and Climate Change are engaged in coordinating climate change projects. The Technical Committee under the CRGE Ministerial Committee also plays important role in monitoring and coordination of climate change projects at all levels. The committee will also ensure technical level collaboration with regional entities and ensure cross-sectoral collaboration on matters of common interests.
14	Staff turnover in the project implementing unit may hamper progress	Low	Fair remuneration, training and technical support will be provided to the project staff. This will help to reduce staff turnover.
15	Conflicting interests among stakeholders with respect to land use (e.g. Crop intensification program which is focused on maximizing agricultural production by promoting mono-cropping and the use of chemical inputs) and access to and use of natural resources hampers the success and implementation of project components.	Low - medium	The project will introduce measures to promote dialogue and build trust among stakeholders. It will primarily be implemented on communal lands first and will be replicated with individual farmers. While Development Agents (DAs) already build trust among the community and provide technical support; the project will use them to reach communities.
16	Limited ability of smallholder farmers to pay for project inputs and technologies.	Medium	The project will promote access to credit to purchase and disseminate modern farming inputs and green technologies. The project will support beneficiaries to establish groups/cooperatives to afford economies of

			scale and bargaining power in buying inputs and aggregating the product in sufficient quality to sell on to traders.
17	Unsustainability of project outputs. Some of the project activities may need operation and maintenance costs such as operation and maintenance of irrigation schemes and, supply and use of improved technologies. Unless a financing mechanism is established or government supports from budget the project output sustainability will be questionable.	Medium	The project will link the project outputs with the existing agricultural extension system. This will help continue to provide participatory and demand-driven services in line with the extension strategy beyond the lifespan of the project. The government is committed to further support and strengthen the extension service, which will provide increased opportunities for rolling out project results.
18	Lack of incentives for local communities to participate and cooperate in interventions that do not yield immediate financial value or reduce incomes in the short term, but aim at longer-term resilience. Furthermore if target communities perceive that the project support lacks fairness and transparency they will be reluctant to participate in the project implementation. This may reduce stakeholder engagement and participation.	Low	Tailored awareness creation will be organized on the importance of the project activities. The project will also demonstrate the benefits of CSA from successful areas. Once the owners of adjacent farmland start enjoying the outputs of project activities; both implementing institutions and communities will start promoting the importance of the project. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project. At the kebele (community) levels, Development Agents (DAs) will provide advisory support and extensions services to local beneficiaries (mainly farmers). DAs will be responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.

A separate environment and social managment framework has been produced, with a detailed analysis of environmental and social impacts and how they will be addressed. This is attached as an annex to the proposal.

The Constitution of FDRE provides the guiding principles for environmental conservation and management. There are accompanied proclamations to operationalize the law.

- Environmental Policy (1997)
- Development, Conservation and Utilization of Wildlife: Proclamation No. 541/2007
- Ethiopian Wildlife Development and Conservation Authority Establishment: Proclamation No. 575/2008

- Environmental Impact Assessment Proclamation No. 299/2002
- National conservation Strategy, Volume II, 1994,
- National Biodiversity Strategy and Action Plan (2005)
- Ethiopia's Pollution Control Proclamation and standards (Proclamation no. 300/2002),
- Guidelines for undertaking sector specific Environmental Impact Assessment on development projects.

The environmental policy and other laws are the basis for protection, conservation and promotion of the environment. Tools that are in use for implementation of the laws and regulations include Strategic Environmental Assessments (SEAs) and Environmental Impact Assessments (EIAs) which guide operationalizing environment and climate change considerations across sectors including agriculture and non-agricultural sectors. Both environmental and social impact assessments (ESIA) are mandatory for development projects, activities and programs in the country. The ESIA process is overseen primarily by the Ministry of Environment, Forest and Climate Change (MEFCC), CRGE Facility of the Ministry of Finance and Economic Cooperation (MoFEC), and National Planning Commission (NPC). Most recently, within the national policy context, there is an Environmental and Social Management Framework MFCC, which was approved in 2015. In addition, there are also a CRGE Facility manuals and guidelines, operation manuals, and appraisal guidelines to ensure compliance with environmental and social safeguards of the Facility/CRGE and social inclusion. Although the project doesn't involve resettlement, an ESIA has been undertaken for this project.

The project – and procurement process – will also comply with the Environmental and Social Management Framework MFCC, which was approved in 2015[93]. This is based on based on best practices (including screening and categorization) of the environmental and social safeguards policies of the World Bank, the Global Environmental Facility, the Africa Developmental Bank and the European Investment Bank. The GoE has prepared prepare the ESSF to address environmental and social issues that may arise from any CRGE investments. Moreover, the preparation of the safeguards framework is based on the provisions and principles of the national environmental and social policies and legal frameworks, including the Constitution and the Environmental Impact Assessment Proclamation. This integrates environmental protection and social development into CRGE investments in a proactive manner to contribute towards sustainable development.

The framework:

- Provides a set of internationally recognized standards and frameworks in environmental and social safeguards to the CRGE investment;
- Avoids, minimize or mitigate any direct, indirect, and potential adverse environmental and social impacts of CRGE investments;

[93] Ethiopia's Environmental And Social Safeguards Framework (Essf) For The CRGE Initiative. Ministry of Environment and Forest. February 2015.

- Defines and sets in place the roles and responsibilities of all relevant stakeholders/institutions in executing safeguards of CRGE investment initiatives throughout their life cycles; and
- Ensures that effective mechanisms are in place for safeguard compliance during CRGE investment implementations.

This applies with the following principles:

- Early application of environmental and social safeguards: Safeguards instruments should be applied proactively in the CRGE investments to contribute towards sustainable development.
- Participation of stakeholders: All concerned stakeholders and affected people should be given the opportunity to participate meaningfully at all stages of CRGE investment.
- Information Dissemination: Sufficient information should be provided in accessible and culturally appropriate ways. Providing information about the project at an early stage of the ESF/SSF process enables the public to understand the trade-offs, contribute meaningfully to project design and implementation, and to have greater trust with the coordinating and implementing entities of the CRGE projects.
- Prevention and mitigation of adverse impacts: one of the key principles is to prevent and/or mitigate any harm to the environment and to people by incorporating environmental and social concerns as an intrinsic part of CRGE investment cycle management. Environmental and social issues will be tracked during all stages of the CRGE investment cycle to ensure that supported investments comply with the procedures and guidelines laid out in the ESSF.
- Accountability and Transparency: Both CRGE implementing and executing entities are accountable for providing sufficient information on their CRGE investment proposals to the CRGE coordinating entities, and for managing the potential impacts of their CRGE investments. The CRGE coordinating entities are accountable for the decisions that are taken in line with the CRGE investments. By doing so, the ESSF would enable all entities involved in the CRGE implementation to be accountable and transparent in all their undertakings.

The ESSF applies to investment all projects financed through the CRGE Facility, and thus to this proposal. It involves screening to identify which projects require an EIA and similarly social issues, and then subsequent guidance should these be required.

Finally, the project will comply with the CRGE manual and guidelines. The CRGE Operations Manual sets out the operational process. It includes the guidance on appraisal and this requires the compliance with environmental and social safeguards of the Facility/CRGE and social inclusion.

The project has been assessed against the AF Environmental and Social Policy with a summary of the checklist for the project presented in section K.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan

Monitoring and evaluation (M&E) of climate change adaptation faces a number of challenges. The scientific and social assumptions are difficult to predict and bound to change, whether relating to temperature and rainfall variability, population demographics or economic growth trajectories. It is very difficult to attribute changes to a given project due to the range of interconnected factors required for change. There is increasing evidence that behavioural and cognitive factors - which are difficult to measure using traditional M&E approaches - are key for climate adaptation. And there can be a significant time lag between interventions and future impacts, with a high probability also for negative outcomes resulting from uncertainty. These challenges have been considered in designing the programme's M&E methodology.

The monitoring and reporting system of the proposed project will follow guidance from the CRGE Monitoring and Evaluation System Manual[94]. Consistent with national procedures and international good practice, the M&E system comprises six components: (1) strategy and objectives, (2) performance indicators, (3) monitoring & reporting, (4) evaluation, (5) roles and responsibilities and (6) maintaining the M&E system. This M&E system generates information to:

- Assist with planning of CRGE activities at various levels of operations;
- Assess the relevance, effectiveness, efficiency, sustainability and likely impact of interventions funded by the CRGE Facility;
- Identify improvements to the relevance, effectiveness, efficiency, sustainability and likely impact of interventions funded by the CRGE Facility;
- Communicate to decision makers, the public and to contributors to the CRGE Facility on implementation successes and challenges;
- Contribute to sectoral reporting to the National Planning Commission; and,
- Contribute to global learning to support climate-resilient green growth.

The approach will ensure that the project maintains a simple and interactive monitoring system allowing for regular reporting and learning at all levels. It is expected that it will be based on the following core activities.

The overall M&E activities for the project will be managed by the PMU in the CRGE facility, but supported by locally based project staff members. These staff will be sited at the regions and Woreda level, and will be able to undertake ongoing M&E at the relevant level of the project.

Outcomes,outputs and processes will be monitored during project implementation with data collected, compiled and analysed by the Monitoring and Evaluation Officer (supported by local experts) on a regular basis. Consistent with the CRGE Facility

[94] Climate Resilient Green Economy (CRGE) Facility: Monitoring and Evaluation System Manual. May 2015.

M&E practices and international good practices, the following M&E activities will be conducted during the course of project implementation.

Activity Recording/Process Documentation: Progress monitoring will provide evidence on accomplishment of the core activities planned under each component and sub-component output, which will be scrutinised by assigning milestones and implementation timelines. This will help the strategic and operational managers to identify which activities are ahead, behind or on schedule. Executing Entities at all levels will be responsible for ensuring routine monitoring on the use of inputs (including finances) and implementation of activities.

Quarterly Progress Report: The federal executing entities will submit aggregated quarterly physical progress reports to the CRGE Facility.The latter will further aggregate and submit a consolidated report (both financial and physical) to the relevant stakeholders. Quarterly reporting will capture activity and output-level information. The narrative section of the quarterly report, therefore, will include a summary of activities and outputs contributing to expected outcomes. The report will also describe progress on implementation as well as lesson learning, a risk update and management. The report will also include the expenditure report and a workplan and budget for the following reporting period. The report will be submitted to the Project Steering Committee for regular review and approval.

Annual Performance Assessment: EEs will submit an annual Performance Assessment Report (PAR) on the project components and sub-components. The PARs inform two monitoring activities at the project coordination level - annual monitoring missions and annual reviews/reports - and leverage the lessons and insights from responses to the M&E Questions. The reporting process is similar to that for quarterly reports. EEs will aggregate component reports before submission to the project coordination unit, which will then submit to the Adaptation Fund and other st. PARs capture activity, output and outcome-level information (as much as possible), as well as lessons and insights from periodic responses to the M&E Questions. The report combines national and GCF reporting requirements, which include but are not limited to, reporting on:

Institutional Learning Events: Federal executing entities will undertake a mid-term and final learning event to reflect on the changes being observed and to take stock of progress made. These learning events will help sharing of experiences and lesson learning among the executing entities (including regional EEs, as relevant).

Annual Monitoring Missions: Joint monitoring missions will provide an opportunity to engage stakeholders of the project, including those that do not have a direct role in implementation. These missions will be organised by the CRGE Facility or federal EEs, to be undertaken annually, and involve regional executing entities, communities and other stakeholdersand other development partners.

Mid-term and End of Project Evaluation: Half way through the project life and during the final three months, independent mid-term/terminal evaluations will be organised. The reports of both evaluations will summarise the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. Outcome level evaluation will be based on assessing results against baseline. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results. Evaluations will be implemented in line with international standards, particularly independence, transparency and the use of standard Development Assistance Committee (DAC) criteria[95]. The evaluations will be guided by best practice approaches to evaluation of climate change interventions[96]. At mid-term, there should be an emphasis upon project or process evaluation, with learning-oriented enquiry; the final evaluation will be more focused upon success in delivering outcomes and the impact on actual climate change adaptation and mitigation in Ethiopia.

Learning and knowledge sharing: Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The CRGE Facility in collaboration with the executing entities will identify and participate through its structures, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. Further, they will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future programmes. A two-way flow of information will be maintained between this project and others of a similar focus.

Table 10. Monitoring and evaluation activities and budget.

Activity	Responsible person	Budget US$	Timeframe
Baseline survey / six monthly visits	Monitoring and Evaluation Officer	55600	Within 2 months of project starting
Inception report	Project Co-ordinator	-	Within 2 months of project starting
Bi-annual Progress Reports	Project Co-ordinator	-	6 monthly
Inception workshop/ learning event	Project Co-ordinator	23809	Within 4 months of project starting
Final workshop / learning event	Project Co-ordinator	23809	Month 36
Annual impact Assessment	Monitoring and Evaluation Officer	-	Annual

[95] The DAC criteria are: relevance, efficiency, effectiveness, impact and sustainability.

[96] Colvin J, Williams A, Ebi K &Patwardhan A (eds) (2016) *Monitoring, evaluation and learning for climate change adaptation at the national level.* Washington: STAP/Provia, in press.

Activity	Responsible person	Budget US$	Timeframe
Annual field visits by IE	Project Co-ordinator and M&E officer	17440	Annual
Mid-term Evaluation	External consultant	58880	Month 18
Final evaluation	External consultant	58880	Month 36
Audits	External auditor	9000	Month 18 and 36
TOTAL		**247419**	

E. Include a results framework for the project proposal, including milestones, targets and indicators

A results framework with Specific, Measurable, Achievable, Realistic and Time-based (SMART) indicators, their baseline and targets and assumptions is provided below. The Framework will be updated during project inception.

Expected results	Indicators	Baseline	Target	Means of verification	Assumptions/risk
Overall objective: to manage the risks from recurring droughts, floods, landslides and erosion –from current risks and under future climate change - through integrated water, agriculture and natural resource management approach.	See outputs below			Project annual impact assessment reports Mid-term evaluation, final report.	Political will exists at all levels to mainstream climate change considerations into planning. Government stakeholders cooperate and agree on designing and implementing risk reduction measures. No major disasters impede progress of project and damage infrastructure. Timely disbursement of project funds.
Component 1: Climate smart resilient project design and plans					
Output 1.1: Awareness of IEs enhanced at all levels for effective implementation Output 1.2: Climate smart development plan designed Output 1.3: Climate resilient water planning Output 1.4. Climate smart agriculture and land – water - forest integration planning Output 1.5: Climate resilient livelihood planning	No. of adaptation plans being implemented. No. of community groups formed and operationalised for adaptation planning (by gender).	0 - No adaptation planning.	7 (1 for each Woreda)	Project annual impact assessment reports, Mid term evaluation, final report.	Demand for climate change awareness and adaptive strategies among communities Communities motivated to take part in adaptation planning. Woredas supportive of adaptation planning processes. Selected interventions are complimentary to other development interventions.
Component 2. Climate resilient integrated water resource use					
Output 2.1. Potable water supply increased in the project areas	Number of HHs disaggregated by gender having access to potable water supply	0	14 systems (15000 households)	Project annual impact assessment reports, Mid-term evaluation, final report, Woreda data.	Communities perceive the benefits and support development
Output 2.2: Irrigation for	Number of systems	0	14 systems	Project annual	Communities perceive benefits and

agriculture designed and developed	that implemented Number hectares of land that is irrigated by project		(15000 households)	impact assessment reports, Mid-term evaluation, final report, Woreda data.	actively engage in adaptation interventions. Information available and appropriate to local conditions
Component 3. Climate smart agriculture – land – water - forest integration					
Output 3.1: Climate smart agriculture implemented at farm level	No of target HH adopting climate resilient farming practices disaggregated by type (e.g. soil conservation) Area of cultivated land (ha) under diversified cropping and integrated farming systems in target areas Participation of women/men in farmer field trials.	Very low number of HH using these practices – exact numbers TBD in baseline	140 ha of physical moisture and soil conservation structures, 70 ha of biological conservation measures (e.g. grass strips, hedges, planting of physical measures), 70 ha of farmland gully treatment and 42 ha of agroforestry.	Project annual impact assessment reports, Mid term evaluation, final report, Woreda data.	Farmers are receptive to trying new varieties and are motivated to take part in farmer field trials. Information available and appropriate to local conditions
Output 3.2. Integrated watershed management	Area of land (ha) under regeneration, treatment Area of land (ha) under afforestation		28 ha of area closures for enhanced natural regeneration, 84 ha of upper watershed gully treatment and 63 ha of rangeland management (in pastoral watersheds). 1600 hectares of afforestation/reforestation of degraded forestland.		Rural communities actively engage in adaptation interventions. Kebeles support and help implement ecosystem based approaches.
Component 4. Resilient livelihood diversification					
Output 4.1: Climate resilient livelihood diversification	No of target HH engaged in alternative				Target households perceive the benefits of livelihood diversification

	livelihoods Number of women/men from target HH with a new source of income. Share of target HH income from non-farm activities				Sufficient demand exists for identified enterprises. Local partners can be identified to support livelihood diversification. Market and technical information available and used by project beneficiaries
Component 5. Capacity building, monitoring, evaluation and learning					
Output 5.1. Building capacity and knowledge transfer Output 5.2: Monitoring, evaluation and learning Output 5.3: Communication of results and lessons	No. of stakeholders who have received training No of farmers making cross visits or viewing participatory videos by other farmers.				Institutions and individuals recognize the value of training and apply new skills. Woredas receptive to key messages in training and have resources to incorporate learning into development plans. Communication materials are culturally relevant and targeted on the basis of gender, age, location and area norms. Lessons learned are identified and analysed in a timely manner, supporting the effective sharing of knowledge. Cross visits and participatory videos convince farmers to change farming practices and behaviours.

F. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s)[97]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Component 1 Climate smart resilient project design and plans	No. of adaptation plans being implemented. No. of community groups formed and operationalised for adaptation planning.	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks	398433
Component 2 Climate resilient integrated water resource use	Number of HHs disaggregated by gender having access to potable water supply Number of hectares of land that is irrigated by this project	Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	4.1.1. No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type)	4676667
Component 3 Climate smart agriculture – land – water - forest integration	No of target HH adopting climate resilient farming practices disaggregated by type (e.g. soil conservation) Area of cultivated land (ha) under diversified cropping and integrated farming systems in target areas	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1.1 No. and type of risk reduction actions or strategies introduced at local level	734681
	Area of land (ha) under regeneration, treatment Area of land (ha) under afforestation	Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	
Component 4 Climate smart agriculture – land – water - forest integration	No of target HH engaged in alternative livelihoods Number of women/men from target HH with a new source of income.	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.2. Percentage of targeted population with sustained climate-resilient livelihood	490603

[97] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

Component 5 Capacity building, monitoring, evaluation and learning.	No. of stakeholders who have received training No of farmers making cross visits or viewing participatory videos by other farmers.	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1 Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	2372621

G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

The detailed breakdown is shown below.

Project execution costs are 5.2% of the total budget (before implementing entity fees) and the project cycle management fee is 5.2% of the budget.

Project Breakdown
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Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)
			Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)		
1. Climate smart resilient project design and plans										
1.1 Awareness of IEs enhanced at all levels for effective implementation										
National desk based study:										
To collect meteorological data (temperature and precipitation) for the relevant project sites (national consultant)	No. of days	6300	15	94500					94500	4500
To collate future climate projections for the relevant areas, capturing uncertainty (national consultant)	No. of days	6300	10	63000					63000	3000
Sub-total				**157500**		**0**		**0**	**157500**	**7500**
1.2: Climate smart development plan designed										
Undertake a study to review the local development plans – identifying climate risks (from current variability and shocks, as well as future climate change), for the planned activities, as well as potential synergies and conflicts between planned activities for water, land, agriculture and forest/ecosystems; and develop locally appropriate climate mainstreaming framework (national consultant)	No. of days	6300	105	661500					661500	31500
Consultation and consideration of how to integrate climate smart activities into the planning process (national consultant)	No. of days	6300	15	94500					94500	4500
Implementation, monitoring and reporting of EIA/ESMP	Lumpsum	630000	1	630000					630000	30000
Perdiem and travel for consultants	No. of days	2000	50	100000					100000	4762
Sub-total				**1486000**		**0**		**0**	**1486000**	**70762**
1.3: Climate resilient water planning										
Prepare detailed design and turnkey tender document for water well construction and supply for potable use, cattle and irrigation	Lumpsum	150000	1	150000					150000	7143
Conduct geophysical studies	Per kebele	50000	14	700000					700000	33333
Collecting regional and local watershed information for the relevant project areas, i.e. hydro- meteorological data, groundwater information to provide an indicative analysis of water availability (supply-side) (national consultant)	No. of days	6300	78	491400					491400	23400
To estimate indicative existing water demand (household and other water users, i.e. farmers, pastoralists) and future demand considering the local plans (national consultant)	No. of days	6300	56	352800					352800	16800
To consider (scope out) the potential influence of climate change on future demand (increased evapo-transpiration, changes in run-off) (national consultant)	No. of days	6300	45	283500					283500	13500
To provide an indicative water balance (supply-demand) in each Kebele with consideration of current and future risks; and develop an integrated water-agriculture-land ecosystem and livelihood diversification plans with the communities (national consultant)	No. of days	6300	45	283500					283500	13500

To support preparation of bylaws for irrigation and drinking water use and training on operation and maintenance of water related infrastructure	No. of days	6300	20	126000					126000	6000
Per diem and travel for consultants	No of days	2000	80	160000					160000	7619
Sub-total				**2547200**		**0**		**0**	**2547200**	**121295**
1.4. Climate smart agriculture and land-water-forest integration planning										
To collate information on agriculture production, management systems and practices in the Woredas and Kebeles and on current practice, supplementing with community based surveys (national consultant)	No. of days	6300	70	441000					441000	21000
To undertake survey and analysis to understand existing soil and water conditions, and environmental degradation (national consultant)	No. of days	6300	70	441000					441000	21000
To consider the agriculture development activities in the local plans, and implications for land and water (national consultant)	No. of days	6300	35	220500					220500	10500
To consider the potential portfolio of options for each relevant adaptation planning zone, considering elevation, precipitation, soil suitability, etc. (national consultant)	No. of days	6300	70	441000					441000	21000
To develop locally appropriate tools and methodologies to support uptake of climate smart agriculture (national consultant)	No. of days	6300	35	220500					220500	10500
Per diem and travel for consultants	No. of days	2000	80	160000					160000	7619
Sub-total				**1924000**		**0**		**0**	**1924000**	**91619**
1.5: Climate resilient livelihood planning										
Collate existing socio-economic data for the Woreda and Kebele and conduct vulnerability assessment of the community (national consultant)	No. of days	6300	70	441000					441000	21000
Conduct consultation with the local community to understand the available livelihood options and foster innovative adaptive practices (national consultant)	No. of days	6300	28	176400					176400	8400
Sensitize the community and discuss current climate variability and future climate change risks to better understand vulnerability (national consultant)	No. of days	6300	70	441000					441000	21000
Develop locally appropriate tools and methodologies to support uptake of climate resilient livelihood strategies (national consultant)	No. of days	6300	20	126000					126000	6000
Per diem and travel for consultants	No. of days	2000	84	168000					168000	8000
Sub-total	No. of days	200	560	112000					112000	5333
				1464400		**0**		**0**	**1464400**	**69733**
Cost for component 1										
				7579100		**0**		**0**	**7579100**	**360910**

Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)
			Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)		
2. Potable water supply and irrigation										
2.1 Potable water supply increased in the project areas										
Shallow well drilling complete with 8" uPVC casing installed to a depth of 150 meters	Per Well	1500000	5	7500000	9	13500000	0	0	21000000	1000000
Purchase and install well monitoring devices	Piece	30000	0	0	7	210000	0	0	210000	10000
Construction of elevated water reservoir and water point	Per Well	100000	0	0	14	1400000	0	0	1400000	66667
Procurement of complete sets of solar powered submersible pump systems, solar PVs, including all electro-mechanical works	Per Set	400000	5	2000000	9	3600000	0	0	5600000	266667
Installation of pump and electro-mechanical fixtures	Per Set	50000	0	0	14	700000	0	0	700000	33333
Purchase spareparts and establish linkage with local part suppliers	Lumpsum per kebele	300000			14	4200000				
Sub-total				**9500000**		**23610000**		**0**	**33110000**	**1576667**
2.2 Irrigation for agriculture designed and developed										
Shallow well drilling complete with 8" uPVC casing installed to a depth of 150 meters - for pressurized irrigation systems	Per Well	1500000	5	7500000	9	13500000	0	0	21000000	1000000
Purchase and install drip irrigation system including cannal construction - for pressurized irrigation systems	ha	170000	30	5100000	110	18700000	0	0	23800000	1133333
Up-grading of traditional irrigation schemes for hand dug wells	ha	35000	0	0	28	980000	0	0	980000	46667
Purchase, import and install solar PV with stand including pump and motor - for pressurized irrigation systems	Per Set	400000	0	0	14	5600000	0	0	5600000	266667
Installation of pump and electro mechanical fixtures - for pressurized irrigation systems	Per Set	50000	0	0	14	700000	0	0	700000	33333
Construction of handdug well with appropriate concrete rings to a depth of 15 meters	Per Well	100000	8	800000	20	2000000	0	0	2800000	133333
Purchase and install an appropriate handpump (Afridev pumps/Rope and Washer) for 1 ha per handdug well	Per Well	50000	8	400000	20	1000000	0	0	1400000	66667
Construction of 2000 M3 Sand Dam	Per Dam	2100000	14	2940000					2940000	140000
Solar Powered Surface Pump for Sand Dam, purchase, install and comission	Per Unit	2100000	14	2940000					2940000	140000
Spring Development	Per unit	4200000	7	2940000					2940000	140000
Purchase spareparts and establish linkage with local part suppliers	Lumpsum per kebele	300000			14	4200000				
Sub-total				**22620000**		**46680000**		**0**	**69300000**	**3300000**
Cost for component 2				**32120000**		**70290000**		**0**	**102410000**	**4876667**

Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)
			Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)		
3. Climate smart agriculture – land – water - forest integration										
3.1 Climate smart agriculture implemented at farm level										
Supporting the supply of basic seeds	number of coopratives	30000	3	90000	4	120000	0	0	210000	10000
Physical moisture and soil conservation structures(INRM)	ha	9504	70	665280	70	665280	0	0	1330560	63360
Biological conservation measures (e.g. grass strips, hedges, planting of physical measures)(INRM)	ha	14256	70	997920	0	0	0	0	997920	47520
Farmland gully treatment(INRM)	ha	11880	35	415800	35	415800	0	0	831600	39600
Introducing and enhancing agroforestry(INRM)										
Homestead multi-storey agro-forestry and soil conservation measures (INRM)	ha	7128	7	49896	7	49896	7	49896	149688	7128
Nurture traditional agroforestry scattered trees on farmlands (Faihderbia, Croton, etc)(INRM)	ha	4752	7	33264	7	33264	7	33264	99792	4752
Establish wind breaks/shelter belts and farm boundaries(INRM)	Lumpsum	62500	2	125000	3	187500	2	125000	437500	20833
Sub-total				**2377160**		**1471740**		**208160**	**4057060**	**193193**
3.2. Integrated watershed management										
Physical and biological SWC measures(INRM)	ha	17107	70	1197504	70	1197504	0	0	2395008	114048
Area closure for enhanced natural regeneration(INRM)	ha	10692	14	149688	14	149688	0	0	299376	14256
Upper watershed gully treatment(INRM)	ha	4990	28	139709	28	139709	28	139709	419126	19958
Rangeland management in pastoral watersheds(INRM)	ha	12500	21	262500	21	262500	21	262500	787500	37500
Nursery establishment or upgrading (INRM)	Lumpsum	750000	5	3750000	0	0	0	0	3750000	178571
Purchase of seeds(INRM)	Quintal	400	280	112000	280	112000	280	112000	336000	16000
Seedling production/Tree and grass seedling planting/direct sowing with grass and tree seeds(INRM)	Lumpsum	475000	2	950000	0	0	0	0	950000	45238
Provision of hand tools(INRM)	Lumpsum	150000	2	300000	0	0	0	0	300000	14286
Utilization plan for closed areas(INRM)	Lumpsum	130000	1	130000	0	0	0	0	130000	6190
Seed purchase (0.5 kg seed/ha) (forest)	kg	210	240	50400	240	50400	160	33600	134400	6400
Pot purchase (1 kg/500 seedlings) (forest)	kg	53	2400	126000	2400	126000	1600	84000	336000	16000
Media preparation (5 person/m3/ha)(forest)	m3	158	480	75600	480	75600	320	50400	201600	9600
Chemicals (1kg/25000 pots) (forest)	kg	210	48	10080	48	10080	32	6720	26880	1280

Biophysical baseline data collection for plantation (3 person/ha) (forest)	person day	32	1440	45360	1440	45360	960	30240	120960	5760
Seedling transportation for plantation (1 truck/50000 pots) (forest)	truck	2100	24	50400	24	50400	16	33600	134400	6400
Nursery construction (store, fencing, etc)(forest)	lumpsum	262500	1	262500	1	262500	0	0	525000	25000
Land and bed preparation for nurseries (forest)	lumpsum	105000	1	105000	1	105000	0	0	210000	10000
Provision of nursery tools and equipments (forest)	lumpsum	157500	1	157500	1	157500	0	0	315000	15000
Sub-total				**7874241**		**2744241**		**752769**	**11371250**	**541488**
Cost for component 3				**10251401**		**4215981**		**960929**	**15428310**	**734681**

Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)
			Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)		
5. Capacity building, monitoring, evaluation and learning										
5.1. Build capacity and knowledge transfer										
Training of woreda experts on seeds (crop)	per person	9240	6	55440	8	73920	0	0	129360	6160
Training of Woreda experts on Irrigation Agronomy	per person	9240	6	55440	8	73920	0	0	129360	6160
Trainings of DAs on irrigation agronomy	per person	6796	14	95144	0	0	0	0	95144	4531
Training of Woredas and Kebeles on scaling up of CSA practices (crop)	per person	6796	21	142716	21	142716	0	0	285432	13592
Training of lead farmers from each Kebele on CA, crop rotation, mulching, inter-cropping, use of cover crops and agronomic practices ….(crop)	per person	4530	56	253680	56	253680	56	253680	761040	36240
Provision of seed production and agri- business training for Woreda experts(crop)	per person	9240	6	55440	8	73920	0	0	129360	6160
Provision of Seed Production and agri- business training forDA's (crop)	per person	7560	6	45360	8	60480	0	0	105840	5040
Provision of seed production and agri-business training for coopratives members	per person	4580	6	27480	8	36640	0	0	64120	3053
Training on post-harvest crop loss for Woreda experts	per person	9240	4	36960	3	27720	0	0	64680	3080
Training on post-harvest crop loss for DAs	per person	6796	6	40776	8	54368	0	0	95144	4531
Training on post-harvest crop loss for farmers	per person	4530	56	253680	56	253680	0	0	507360	24160
Demonstrations in each woreda (crop)	per demonstration	20000	4	80000	3	60000	0	0	140000	6667
Organizing a field day (crop)	per event	2139500	2	4279000	2	4279000	0	0	8558000	407524
Conduct demonstration of post-harvest technologies (crop)	per event	20000	4	80000	4	80000	0	0	160000	7619
Organizing a field day on post harvest (crop)	per event	2139500	0	0	1	2139500	1	2139500	4279000	203762
Demonstration of best soil and water harvesting techniques (crop)	per woreda	10000	3	30000	4	40000	0	0	70000	3333
Organizing a field day on soil and water conservation and irrigation (crop)	per event	2139500	2	4279000	0	0	0	0	4279000	203762
Provision of technical backstoping and follow up for the coopratives (crop)	Number of rounds	80000	2	160000	2	160000	2	160000	480000	22857
Establishment of coopratives (crop)	number of coopratives	50000	2	100000	5	250000	0	0	350000	16667
Support formation of youth groups (male and female) to give agricultural mechanization rental & hire services	number of groups	2000000	1	2000000	3	6000000	0	0	8000000	380952
Technical backstopping to support the implementation of the activities (crop)	number of rounds	80000	4	320000	3	240000	0	0	560000	26667
Woreda Logistic support (WSD)	Lumpsum	500000	1	500000	1	500000	1	500000	1500000	71429
Kebele logistic support (FTC)	Lumpsum	80000	1	80000	1	80000	1	80000	240000	11429
Conduct farmers peer learning(fruits and vegetables)	per person	2500	70	175000	70	175000	70	175000	525000	25000
Writing pads for workshop (fruits and vegetables)	No	20	280	5600	280	5600	280	5600	16800	800
Pen for workshop (fruits and vegetables)	Packet	250	10	2500	10	2500	10	2500	7500	357
Printing paper (fruits and vegetables)	Pad	130	30	3900	30	3900	30	3900	11700	557
Flip chart (fruits and vegetables)	role	140	20	2800	20	2800	20	2800	8400	400
Marker (fruits and vegetables)	Packet	80	10	800	10	800	10	800	2400	114
Clip board (fruits and vegetables)	no	75	30	2250	20	1500	20	1500	5250	250
Hall rent (fruits and vegetables)	day	2500	4	10000	4	10000	4	10000	30000	1429
Tape (fruits and vegetables)	Number	250	4	1000	4	1000	0	0	2000	95
String (fruits and vegetables)	role	250	10	2500	10	2500	10	2500	7500	357
Tie wire (fruits and vegetables)	kg	45	100	4500	200	9000	250	11250	24750	1179
Per diem (fruits and vegetables)	per person	500	280	140000	280	140000	280	140000	420000	20000
Travel expense (fruits and vegetables)	per person	110	280	30800	280	30800	280	30800	92400	4400
Transportation(fruits and vegetables)	per liter	15	400	6000	400	6000	400	6000	18000	857
Training and awareness creation for experts- perdiem (forage)	per person	300	28	8400	28	8400	28	8400	25200	1200
Capacity building and training for DAs (beekeeping)	per person	1500	7	10500	7	10500	7	10500	31500	1500
Capacity building and training for beekeepers	per person	800	161	128800	161	128800	161	128800	386400	18400
Training of trainers on poultry production(TOT)	per person	3000	7	21000	7	21000	0	0	42000	2000

Farmers training on poultry production	per person	2000	140	280000	140	280000	140	280000	840000	40000
Workshop on poultry production & marketing	per workshop	100000	2	200000	2	200000	2	200000	600000	28571
Training and awareness creation for experts- -transport cost (forage)	per person	900	28	25200	28	25200	28	25200	75600	3600
Training and awareness creation for experts- -perdim for trainers (forage)	per person	500	4	2000	4	2000	6	3000	7000	333
Training and awareness creation for experts- -fuel (forage)	liter	17	480	8160	480	8160	480	8160	24480	1166
Training of farmers in relation to loan and sav. (meat production)	per person	300	161	48300	161	48300	161	48300	144900	6900
Regional and federal experts (training workshop) (meat production)	per workshop	90000	1	90000	1	90000	0	0	180000	8571
In country region to region experts (training) (meat production)	per person	300	7	2100	7	2100	7	2100	6300	300
In country region to region farmers (training) (meat production)	per person	200	91	18200	91	18200	91	18200	54600	2600
Capacity building and training for experts (beekeeping)	per person	5500	7	38500	7	38500	7	38500	115500	5500
Closure and improvements of community grazing land-awerness creation(closure, forage production)	per person	300	28	8400	28	8400	28	8400	25200	1200
In country region to region experts (experience sharing) (meat production)	per woreda	10000	7	70000	7	70000	7	70000	210000	10000
In country region to region farmers(experience sharing) (meat production)	per person	200	70	14000	70	14000	70	14000	42000	2000
Awareness creation for all meat value chain actors and stakeholders (meat production)	per person	1200	28	33600	28	33600	28	33600	100800	4800
Establish community based system (by-laws & institutions) for controlled grazing--skilled labour techinical support	per woreda	4000	2	8000	3	12000	2	8000	28000	1333
MoA workshops and awareness creation forums(INRM)	Lumpsum	400000	1	400000	0	0	0	0	400000	19048
Region workshops and awareness creation forums(INRM)	Lumpsum	900000	1	900000	0	0	0	0	900000	42857
Woreda workshops and awareness creation forums(INRM)	Lumpsum	125000	2	250000	0	0	0	0	250000	11905
MoA, training (INRM)	per person	5000	4	20000	0	0	4	20000	40000	1905
Region, training (INRM)	per person	5000	16	80000	0	0	16	80000	160000	7619
Wereda, training (INRM)	per person	5000	48	240000	0	0	48	240000	480000	22857
Experience sharing field tours for farmers(INRM)	per person	500	360	180000	0	0	360	180000	360000	17143
Improve Farmers' Training Centers (FTCs) to demonstrate and train farmers on climate proof measures(INRM)	Lumpsum/FTC	146250	2	292500	2	292500	0	0	585000	27857
Enhancing experts understanding on forestry and related issues	lumpsum	500000	1	500000	1	500000	0	0	1000000	47619
Enhance expert capacity in project planning (forest)	lumpsum	525000	1	525000	0	0	0	0	525000	25000
Conduct awareness raising activities for local people in forest sector	lumpsum	42000	2	84000	3	126000	2	84000	294000	14000
Provision of capacity building training to local people in forest sector	lumpsum	42000	2	84000	3	126000	2	84000	294000	14000
Training and awareness raising on operation and maintenance and on efficient potable water use (reuse, recycling and rationing so that supplies can withstand fluctuations in recharge)	Per Kebele	40000	7	280000	7	280000	0	0	560000	26667
Training and awareness raising on operation and maintenance and on efficient irrigation water use and by-laws	Per Kebele	40000	7	280000	7	280000	0	0	560000	26667
Technical advise/support for nurseries (forest)	lumpsum	52500	1	52500	1	52500	0	0	105000	5000
Strengthen forest governance at various level	lumpsum	525000	1	525000	1	525000	0	0	1050000	50000
Enhance capacities of forestry training institutions in providing skill training for forest governance	lumpsum	525000	1	525000	0	0	0	0	525000	25000
Establishment of demonstration plots (forest)	lumpsum	525000	1	525000	0	0	0	0	525000	25000
Scaling-up good practices/knowledge for forest governance (forest)	lumpsum	2625000	0	0	1	2625000	0	0	2625000	125000
Sub-total				**20115926**		**21097104**		**5118990**	**46332020**	**2206287**
5.2 Monitoring, evaluaiton and learning										
	No of days	6300	50	315000	50	315000	50	315000	945000	45000
	No of days	6300			20	126000	20	126000	252000	12000
		6300			20	126000	20	126000	252000	12000
Sub-total				**315000**		**567000**		**567000**	**1449000**	**69000**
Develop a communication strategy (international consultant)	No of days	16800	4	67200					67200	3200
Develop a knowledge management stategy (international consultant)	No of days	16800	4	67200					67200	3200
Preparation of guidelines and manuals (international consultant)	No of days	16800	20	336000					336000	16000

Farmer-to-farmer fora (cross visits, community meetings etc.)	No of days	800			280	224000	280	224000	448000	21333
Development of participatory videos (cam corders)	Lumpsum			150000					150000	7143
Experience sharing for Woreda experts on climate smart villages and demonstrations (crop)	per person	11810	14	165340	14	165340	0	0	330680	15747
Experience sharing for Woreda experts on best postharvest handling facilities (crop)	per person	11810	14	165340	14	165340	14	165340	496020	23620
Experience sharing for Woreda experts on best soil and water conservation and irrgation facilities (crop)	per person	11810	14	165340	14	165340	14	165340	496020	23620
Exposure visit for different stakeholders (experience sharing) perdiem (beekeeping)	per person	2900	28	81200	28	81200	28	81200	243600	11600
Exposure visit for different stakeholders (experience sharing) transport (beekeeping)	per person	2000	28	56000	28	56000	28	56000	168000	8000
Exposure visit for different stakeholders (experience sharing) accommodation (beekeeping)	per person	400	28	11200	28	11200	28	11200	33600	1600
Experience sharing among poultry multiplication centres	per person	3500	28	98000	28	98000	28	98000	294000	14000
Federal level publication and media	Lumpsum	500000			1	500000	0	0	500000	23810
Region level publicaiton and media	Lumpsum	200000	0	0	5	1000000	0	0	1000000	47619
Woreda level publication and media	Lumpsum	150000	0	0	7	1050000	0	0	1050000	50000
Sub-total				**1362820**		**3516420**		**801080**	**5680320**	**270491**
Cost for component 5				**21793746**		**25180524**		**6487070**	**53461340**	**2545778**

Implementing Entity Management Fee use and Breakdown

Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)
			Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)		
Sectors: Technical officer one each at MoANR, MoLF, MoWIE, MEFCC (4 persons)	Month	25000	48	1200000	48	1200000	48	1200000	3600000	171428.57
Woreda: M & E expert and project facilitator (1 per woreda - 7 persons)	Month	10000	84	840000	84	840000	84	840000	2520000	120000.00
Communicty development agents/facilitators (1 at each Kebele)	Per person per year	36000	14	504000	14	504000	14	504000	1512000	72000.00
Motor bike: 1 per woreda (ETB 50,000 per bike)	per bike	50000	7	350000		0		0	350000	16666.67
Fuel, maintenance and lubricants for Motor Bike: 10000 ETB per bike per year	Per bike per year	10000	7	70000	7	70000	7	70000	210000	10000.00
Per diem (50 days per person per year)	Per person per year	15000	11	165000	11	165000	11	165000	495000	23571.43
Desk and chair (12000 ETB per person)	Per person	12000	11	132000		0		0	132000	6285.71
Lap tops and printers (20000 ETB per person)	Per person	20000	11	220000		0		0	220000	10476.19
Communication	Per person per year	5000	11	55000	11	55000	11	55000	165000	7857.14
Solar lamps with phone charger for 14 development agents/facilitators	Piece	2000	14	28000		0		0	28000	1333.33
Boots and tee shirts for development agents	Lumpsum per person	1000	14	14000		0		0	14000	666.67
Stationaries (7,500 ETB per person per year)	Per person per year	7500	11	82500	11	82500	11	82500	247500	11785.71
Launching meetings/workshop at woreda level	Per woreda	40000	7	280000						
Sub-total				**3940500**		**2916500**		**2916500**	**9773500**	**465405**

Executing Costs and Breakdown

Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)
			Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)		
Project cycle management fee (<8.5% of the total budget)										
Project officer (with safeguards expertise) (1)	Month	30000	12	360000	12	360000	12	360000	1080000	51429
Management meetings (Steering Committees, etc)	Per meeting	20000	3	60000	3	60000	3	60000	180000	8571
Vehicle: Double cabin pick up (630,000 ETB per vehicle)	no.	630000	4	2520000					2520000	120000
Vehicle operations cost	Per vehicle per year	120000	4	480000	4	480000	4	480000	1440000	68571
Per diem (50 days per person per year)	Per person per year	15000	1	15000	1	15000	1	15000	45000	2143
Office furniture (12000 ETB per person)	Per person	12000	1	12000		0		0	12000	571
Lap tops and printers (20000 ETB per person)	Per person	20000	1	20000		0		0	20000	952
Communication	Per person per year	5000	1	5000	1	5000	1	5000	15000	714
Stationaries (7,500 ETB per person per year)	per person per year	7500	1	7500	1	7500	1	7500	22500	1071
Baseline survey and six monthly visits	Per year			389200		389200		389200	1167600	55600
Launching and closing workshops	Per workshop	500000	1	500000		0	1	500000	1000000	47619
Annual review workshops and final workshop	Once a year			122080		122080		122080	366240	17440
Mid-term evaluation	Lumpsum					1236480			1236480	58880
Final evaluation	Lumpsum							1236480	1236480	58880
Audits	Per year	63000	1	63000	1	63000	1	63000	189000	9000
Sub-total				**4553780**		**2738260**		**3238260**	**10530300**	**501443**

H. Include a disbursement schedule with time-bound milestones.

	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1: Climate smart resilient project design and plans												
Output 1.1. Awareness of IEs enhanced at all levels for effective implementation				100								
Output 1.2: Climate smart development plan designed				100								
Output 1.3: Climate resilient water planning				100								
Output 1.4. Climate smart agriculture and land – water - forest integration planning				100								
Output 1.5: Climate resilient livelihood planning				100								
Component 2: Climate resilient integrated water resource use												
Output 2.1. Potable water supply increased in the project areas			50		100							
Output 2.2: Irrigation for agriculture designed and developed				50				100				
Component 3. Climate smart agriculture – land – water - forest integration												
Output 3.1: Climate smart agriculture implemented at farm level				60				90			100	
Output 3.2. Integrated watershed management												
Component 4 Resilient livelihood diversification												
Output 4.1: Climate resilient and green livelihood diversification				50				75			100	
Component 5. Capacity building, monitoring, evaluation and learning												
Output 5.1. Building capacity and knowledge transfer				45				90				100
Output 5.2: Monitoring, evaluation and learning				35				75				100
Output 5.3: Communication of results and lessons				35				80				100
Project management and execution				40				70				100

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[98] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (……list here…..) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Name & Signature Implementing Entity Coordinator	
Date: *(Month, Day, Year)*	Tel. and email:
Project Contact Person:	
Tel. And Email:	

6. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

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Federal Democratic Republic of Ethiopia
MINISTRY OF AGRICULTURE AND NATURAL RESOURCES

ቁጥር No. 13/3814/37/8336

ቀን Date 29/07/2016

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[1] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Tefera Tadesse, Director, *Ministry of Agriculture and Natural Resources*	Date: *July 27, 2016*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans [Growth and Transformation Plan (GTP) II, National Adaptation Plan of Action (NAPA), Nationally Appropriate Mitigation Actions (NAMA), and the overarching Climate-Resilient Green Economy (CRGE) Strategy] and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.
Implementing Entity Coordinator — Tefera Tadesse, Director, Natural Resources Management Directorate
Date: *July 27,2016* — Tel. and email: 251-0911-373582; aklile201@gmail.com
Project Contact Person: Mr Birhanu Assefa
Tel. And Email: 251-0916-831504; berhanuassefa186@gmail.com

6. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

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The Federal Democratic Republic of Ethiopia
Ministry of Environment, Forest and Climate Change

ቁጥር 16/2.1/6470
Ref:
ቀን 29/07/16

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[1] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Name: Kebede Yimam *Position:* Forestry Sector, State Minister *Ministry of environment, Forest and Climate change*	Date: *July, 28, 2016*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (Adaptation plan of Ethiopia, Adaptation plan of Action, Climate Resilient Green Economy strategy in the Forest and Agriculture sector, Growth and Transformational plan(GTP-2) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Implementing Entity Coordinator Kebede Yimam Forestry Sector, State Minister Abrehet Gebrehiwot	
Date: *July, 28, 2016*	Tel. +[redacted] email: gebrehiwotabrehet6@gmail.com 0913222298
Project Contact Person:: Getnet Amare	
Tel. +251912047479 And Email: getnetamare@gmail.com	

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The Federal Democratic Republic of Ethiopia
Ministry of Water, Irrigation & Electricity

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Ref. No. mwIE 29/26/277

27 JUL 2016

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

Mr.Motuma Mekassa, Minister Ministry of water,Irrigation and Electricity	Date: *07/27/2016*

B. Implementing Entity certification Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (sector CR and GE strategy ,NAPA,GTPII ,NAMA of the ministry ....) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Name Belaynesh Birru Implementing Entity Coordinator	Belaynesh Birru Head, Environmental Impact Assessment & Social Development Office
Date: *07/27/2016*	Tel. and email: yulbel_2008@yahoo.com
Project Contact Person: Belaynesh Birru	
Tel. And Email:yulbel_2008@yahoo.com 0911215392	

The Federal Democratic Republic of Ethiopia Ministry of Water, Irrigation & Electricity

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ADDIS ABABA –ETHIOPIA

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P.O.Box 5673

B.S.P.E

Cost of activities for all components in detail

Exchange rate 1 ETB= 0.047619048 USD

Component/output		Description of item/activity	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years (ETB)	Total cost for all years (USD)	Budget note					
					Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)								
1. Climate smart resilient project design and plans																		
1.1 Awareness of IEs enhanced at all levels for effective implementation																		
		National desk based study:																
		To collect meteorological data (temperature and precipitation) for the relevant project sites (national consultant)	No. of days	6300	15	94500					94500	4500	1	National consultant @ USD 300 per day; number of days are shown under the 'quantity' column.				
		To collate future climate projections for the relevant areas, capturing uncertainty (national consultant)	No. of days	6300	10	63000					63000	3000	1					
Sub-total						**157500**		**0**		**0**	**157500**	**7500**						
1.2: Climate smart development plan designed																		
		Undertake a study to review the local development plans – identifying climate risks (from current variability and shocks, as well as future climate change), for the planned activities, as well as potential synergies and conflicts between planned activities for water, land, agriculture and forest/ecosystems; and develop locally appropriate climate mainstreaming framework (national consultant)	No. of days	6300	105	661500					661500	31500	1					
		Consultation and consideration of how to integrate climate smart activities into the planning process (national consultant)	No. of days	6300	15	94500					94500	4500	1					
		Implementation, monitoring and reporting of EIA/ESMP	Lumpsum	630000	1	630000					630000	30000	1					
		Perdiem and travel for consultants	No. of days	2000	50	100000					100000	4762	2	Per diem for travel for national consultant @ ETB 2000 per day				
Sub-total						**1486000**		**0**		**0**	**1486000**	**70762**						
1.3: Climate resilient water planning																		
		Prepare detailed design and turnkey tender document for water well construction and supply for potable use, cattle and irrigation	Lumpsum	150000	1	150000					150000	7143	3	Tender document preparation (lumpsum)				
		Conduct geophysical studies	Per kebele	50000	14	700000					700000	33333	4	One geophysical study to be conducted per kebele				
		Collecting regional and local watershed information for the relevant project areas, i.e. hydro- meteorological data, groundwater information to provide an indicative analysis of water availability (supply-side) (national consultant)	No. of days	6300	78	491400					491400	23400	1					
		To estimate indicative existing water demand (household and other water users, i.e. farmers, pastoralists) and future demand considering the local plans (national consultant)	No. of days	6300	56	352800					352800	16800	1					
		To consider (scope out) the potential influence of climate change on future demand (increased evapo-transpiration, changes in run-off) (national consultant)	No. of days	6300	45	283500					283500	13500	1					
		To provide an indicative water balance (supply-demand) in each Kebele with consideration of current and future risks; and develop an integrated water-agriculture-land ecosystem and livelihood diversification plans with the communities (national consultant)	No. of days	6300	45	283500					283500	13500	1					
		To support preparation of bylaws for irrigation and drinking water use and training on operation and maintenance of water related infrastructure	No. of days	6300	20	126000					126000	6000	1					
		Per diem and travel for consultants	No of days	2000	80	160000					160000	7619	2					
Sub-total						**2547200**		**0**		**0**	**2547200**	**121295**						
1.4. Climate smart agriculture and land-water-forest integration planning																		
		To collate information on agriculture production, management systems and practices in the Woredas and Kebeles and on current practice, supplementing with community based surveys (national consultant)	No. of days	6300	70	441000					441000	21000	1					
		To undertake survey and analysis to understand existing soil and water conditions, and environmental degradation (national consultant)	No. of days	6300	70	441000					441000	21000	1					
		To consider the agriculture development activities in the local plans, and implications for land and water (national consultant)	No. of days	6300	35	220500					220500	10500	1					
		To consider the potential portfolio of options for each relevant adaptation planning zone, considering elevation, precipitation, soil suitability, etc. (national consultant)	No. of days	6300	70	441000					441000	21000	1					
		To develop locally appropriate tools and methodologies to support uptake of climate smart agriculture (national consultant)	No. of days	6300	35	220500					220500	10500	1					
		Per diem and travel for consultants	No. of days	2000	80	160000					160000	7619	2					
Sub-total						**1924000**		**0**		**0**	**1924000**	**91619**						
1.5: Climate resilient livelihood planning																		
		Collate existing socio-economic data for the Woreda and Kebele and conduct vulnerability assessment of the community (national consultant)	No. of days	6300	70	441000					441000	21000	1					
		Conduct consultation with the local community to understand the available livelihood options and foster innovative adaptive practices (national consultant)	No. of days	6300	28	176400					176400	8400	1					
		Sensitize the community and discuss current climate variability and future climate change risks to better understand vulnerability (national consultant)	No. of days	6300	70	441000					441000	21000	1					
		Develop locally appropriate tools and methodologies to support uptake of climate resilient livelihood strategies (national consultant)	No. of days	6300	20	126000					126000	6000	1					
		Per diem and travel for consultants	No. of days	2000	84	168000					168000	8000	2					
		Per diem for farmers and pastoralists	No. of days	200	560	112000					112000	5333						
Sub-total						**1464400**		**0**		**0**	**1464400**	**69733**						
Cost for component 1						**7579100**		**0**		**0**	**7579100**	**360910**						
2. Potable water supply and irrigation																		
2.1 Potable water supply increased in the project areas																		
		Shallow well drilling complete with 8" uPVC casing installed to a depth of 150 meters	Per Well	1500000	5	7500000	9	13500000	0	0	21000000	1000000						
		Purchase and install well monitoring devices	Piece	30000	0	0	7	210000	0	0	210000	10000						
		Construction of elevated water reservoir and water point	Per Well	100000	0	0	14	1400000	0	0	1400000	66667						
		Procurement of complete sets of solar powered submersible pump systems, solar PVs, inc	Per Set	400000	5	2000000	9	3600000	0	0	5600000	266667						
		Installation of pump and electro-mechanical fixtures	Per Set	50000	0	0	14	700000	0	0	700000	33333						
		Purchase spareparts and establish linkage with local part suppliers	Lumpsum per kebele	300000			14	4200000										

Sub-total						**9500000**		**23610000**		**0**	**33110000**	**1576667**								
2.2 Irrigation for agriculture designed and developed																				
		Shallow well drilling complete with 8" uPVC casing installed to a depth of 150 meters - for p	Per Well	1500000	5	7500000	9	13500000	0	0	21000000	1000000								
		Purchase and install drip irrigation system including cannal construction - for pressurized ir	ha	170000	30	5100000	110	18700000	0	0	23800000	1133333								
		Up-grading of traditional irrigation schemes for hand dug wells	ha	35000	0	0	28	980000	0	0	980000	46667								
		Purchase, import and install solar PV with stand including pump and motor - for pressurize	Per Set	400000	0	0	14	5600000	0	0	5600000	266667								
		Installation of pump and electro mechanical fixtures - for pressurized irrigation systems	Per Set	50000	0	0	14	700000	0	0	700000	33333								
		Construction of handdug well with appropriate concrete rings to a depth of 15 meters	Per Well	100000	8	800000	20	2000000	0	0	2800000	133333								
		Purchase and install an appropriate handpump (Afridev pumps/Rope and Washer) for 1 ha	Per Well	50000	8	400000	20	1000000	0	0	1400000	66667								
		Construction of 2000 M3 Sand Dam	Per Dam	210000	14	2940000					2940000	140000								
		Solar Powered Surface Pump for Sand Dam, purchase, install and comission	Per Unit	210000	14	2940000					2940000	140000								
		Spring Development	Per unit	420000	7	2940000					2940000	140000								
		Purchase spareparts and establish linkage with local part suppliers	Lumpsum per kebele	300000			14	4200000												
Sub-total						**22620000**		**46680000**		**0**	**69300000**	**3300000**								
Cost for component 2						32120000		70290000		0	102410000	4876667								
3. Climate smart agriculture – land – water - forest integration																				
3.1 Climate smart agriculture implemented at farm level																				
		Supporting the supply of basic seeds	number of cooprative	30000	3	90000	4	120000	0	0	210000	10000								
		Physical moisture and soil conservation structures(INRM)	ha	9504	70	665280	70	665280	0	0	1330560	63360								
		Biological conservation measures (e.g. grass strips, hedges, planting of physical measures	ha	14256	70	997920	0	0	0	0	997920	47520								
		Farmland gully treatment(INRM)	ha	11880	35	415800	35	415800	0	0	831600	39600								
		Introducing and enhancing agroforestry(INRM)																		
		Homestead multi-storey agro-forestry and soil conservation measures (INRM)	ha	7128	7	49896	7	49896	7	49896	149688	7128								
		Nurture traditional agroforestry scattered trees on farmlands (Faihderbia, Croton, etc)(INR	ha	4752	7	33264	7	33264	7	33264	99792	4752								
		Establish wind breaks/shelter belts and farm boundaries(INRM)	Lumpsum	62500	2	125000	3	187500	2	125000	437500	20833								
Sub-total						**2377160**		**1471740**		**208160**	**4057060**	**193193**								
3.2. Integrated watershed management																				
		Physical and biological SWC measures(INRM)	ha	17107	70	1197504	70	1197504	0	0	2395008	114048								
		Area closure for enhanced natural regeneration(INRM)	ha	10692	14	149688	14	149688	0	0	299376	14256								
		Upper watershed gully treatment(INRM)	ha	4990	28	139709	28	139709	28	139709	419126	19958								
		Rangeland management in pastoral watersheds(INRM)	ha	12500	21	262500	21	262500	21	262500	787500	37500								
		Nursery establishment or upgrading (INRM)	Lumpsum	750000	5	3750000	0	0	0	0	3750000	178571								
		Purchase of seeds(INRM)	Quintal	400	280	112000	280	112000	280	112000	336000	16000								
		Seedling production/Tree and grass seedling planting/direct sowing with grass and tree se	Lumpsum	475000	2	950000	0	0	0	0	950000	45238								
		Provision of hand tools(INRM)	Lumpsum	150000	2	300000	0	0	0	0	300000	14286								
		Utilization plan for closed areas(INRM)	Lumpsum	130000	1	130000	0	0	0	0	130000	6190								
		Seed purchase (0.5 kg seed/ha) (forest)	kg	210	240	50400	240	50400	160	33600	134400	6400								
		Pot purchase (1 kg/500 seedlings) (forest)	kg	53	2400	126000	2400	126000	1600	84000	336000	16000								
		Media preparation (5 person/m3/ha)(forest)	m3	158	480	75600	480	75600	320	50400	201600	9600								
		Chemicals (1kg/25000 pots) (forest)	kg	210	48	10080	48	10080	32	6720	26880	1280								
		Biophysical baseline data collection for plantation (3 person/ha) (forest)	person day	32	1440	45360	1440	45360	960	30240	120960	5760								
		Seedling transportation for plantation (1 truck/50000 pots) (forest)	truck	2100	24	50400	24	50400	16	33600	134400	6400								
		Nursery construction (store, fencing, etc)(forest)	lumpsum	262500	1	262500	1	262500	0	0	525000	25000								
		Land and bed preparation for nurseries (forest)	lumpsum	105000	1	105000	1	105000	0	0	210000	10000								
		Provision of nursery tools and equipments (forest)	lumpsum	157500	1	157500	1	157500	0	0	315000	15000								
Sub-total						**7874241**		**2744241**		**752769**	**11371250**	**541488**								
Cost for component 3						10251401		4215981		960929	15428310	734681								
4. Resilient livelihood diversification																				
		Potato promotion (Genet, Tolcha, etc)	tonne	7000	56	392000	56	392000	56	392000	1176000	56000								
		Purchase and adopt low land fruit	Number	90	4000	360000	4000	360000	4000	360000	1080000	51429								
		Fruit management tools/scissor	Number	200	600	120000	600	120000	600	120000	360000	17143								
		Purchase cover crops	tonnes	12000	7	84000	7	84000	7	84000	252000	12000								
		Vegetable promotion (carrot, tomato, etc)	kg	1000	140	140000	140	140000	140	140000	420000	20000								
		Closure and improvement of community grazing land	per person	200	14	2800	14	2800	14	2800	8400	400								
		Efficient feed conservation management-materials (molases, plastic bags etc.)	per woreda	20000	7	140000	7	140000	7	140000	420000	20000								
		Practice stall feeding/cut & carry system-skill upgrading	per person	300	28	8400	28	8400	28	8400	25200	1200								
		Practice stall feeding/cut & carry system-for farmers	per person	200	70	14000	70	14000	70	14000	42000	2000								
		Forage seeds supply	Quintal	50000	8	400000	6	300000	7	350000	1050000	50000								
		Sheep breed (imported)	number	6000	14	84000	14	84000	14	84000	252000	12000								
		Goat breed (imported)	number	4500	14	63000	14	63000	14	63000	189000	9000								
		Closure and improvement of community grazing land skilled labor time	number	300	28	8400	28	8400	28	8400	25200	1200								
		Closure and improvement of community grazing land-fertilizer purchase(closure, forage)	Quintal	1000	140	140000	140	140000	140	140000	420000	20000								
		Small chicken-egg hatchery promotion	per kebele	3000	14	42000	14	42000	14	42000	126000	6000								
		Promotion of poultry products as food and conducting symposium on different food prepara	per event	300000	2	600000	2	600000	3	900000	2100000	100000								
		Poultry value chain technical support	per Woreda	25000	7	175000	7	175000	7	175000	525000	25000								
		Enhanced pasture management/rangeland management skill upgrading	per person	300	70	21000	70	662	70	21000	42662	2032								
		Efficient feed conservation management (storage, silage, hay making) skills to farmers/pa	per person	200	70	14000	70	14000	70	14000	42000	2000								
		Efficient feed conservation management skill upgrading	per person	300	28	8400	28	8400	28	8400	25200	1200								
		Micro finance facilitation for livelihood diversification (2)																		
		International consultant	No. of days	16800	50	840000					840000	40000								
		National consultant	No. of days	6300	30	189000					189000	9000								
		Value chain analysis (2)																		
		International consultant	No. of days	16800	30	504000					504000	24000								
		National consultant	No. of days	6300	30	189000					189000	9000								
Sub-total						**4539000**		**2696662**		**3067000**	**10302662**	**490603**								
Cost for component 4						4539000		2696662		3067000	10302662	490603								
5. Capacity building, monitoring, evaluation and learning																				
5.1. Build capacity and knowledge transfer																				
		Training of woreda experts on seeds (crop)	per person	9240	6	55440	8	73920	0	0	129360	6160								
		Training of Woreda experts on Irrigation Agronomy	per person	9240	6	55440	8	73920	0	0	129360	6160								
		Trainings of DAs on irrigation agronomy	per person	6796	14	95144	0	0	0	0	95144	4531								
		Training of Woredas and Kebeles on scaling up of CSA practices (crop)	per person	6796	21	142716	21	142716	0	0	285432	13592								
		Training of lead farmers from each Kebele on CA, crop rotation, mulching, inter-cropping, use of cover crops and agronomic practices ….(crop)	per person	4530	56	253680	56	253680	56	253680	761040	36240								

		Provision of seed production and agri- business training for Woreda experts(crop)	per person	9240	6	55440	8	73920	0	0	129360	6160							
		Provision of Seed Production and agri- business training forDA's (crop)	per person	7560	6	45360	8	60480	0	0	105840	5040							
		Provision of seed production and agri-business training for coopratives members	per person	4580	6	27480	8	36640	0	0	64120	3053							
		Training on post-harvest crop loss for Woreda experts	per person	9240	4	36960	3	27720	0	0	64680	3080							
		Training on post-harvest crop loss for DAs	per person	6796	6	40776	8	54368	0	0	95144	4531							
		Training on post-harvest crop loss for farmers	per person	4530	56	253680	56	253680	0	0	507360	24160							
		Demonstrations in each woreda (crop)	per demonstration	20000	4	80000	3	60000	0	0	140000	6667							
		Organizing a field day (crop)	per event	2139500	2	4279000	2	4279000	0	0	8558000	407524							
		Conduct demonstration of post-harvest technologies (crop)	per event	20000	4	80000	4	80000	0	0	160000	7619							
		Organizing a field day on post harvest (crop)	per event	2139500	0	0	1	2139500	1	2139500	4279000	203762							
		Demonstration of best soil and water harvesting techniques (crop)	per woreda	10000	3	30000	4	40000	0	0	70000	3333							
		Organizing a field day on soil and water conservation and irrigation (crop)	per event	2139500	2	4279000	0	0	0	0	4279000	203762							
		Provision of technical backstoping and follow up for the cooperatives (crop)	Number of rounds	80000	2	160000	2	160000	2	160000	480000	22857							
		Establishment of cooperatives (crop)	number of cooprative	50000	2	100000	5	250000	0	0	350000	16667							
		Support formation of youth groups (male and female) to give agricultural mechanization rental & hire services	number of groups	2000000	1	2000000	3	6000000	0	0	8000000	380952							
		Technical backstopping to support the implementation of the activities (crop)	number of rounds	80000	4	320000	3	240000	0	0	560000	26667							
		Woreda Logistic support (WSD)	Lumpsum	500000	1	500000	1	500000	1	500000	1500000	71429							
		Kebele logistic support (FTC)	Lumpsum	80000	1	80000	1	80000	1	80000	240000	11429							
		Conduct farmers peer learning(fruits and vegetables)	per person	2500	70	175000	70	175000	70	175000	525000	25000							
		Writing pads for workshop (fruits and vegetables)	No	20	280	5600	280	5600	280	5600	16800	800							
		Pen for workshop (fruits and vegetables)	Packet	250	10	2500	10	2500	10	2500	7500	357							
		Printing paper (fruits and vegetables)	Pad	130	30	3900	30	3900	30	3900	11700	557							
		Flip chart (fruits and vegetables)	role	140	20	2800	20	2800	20	2800	8400	400							
		Marker (fruits and vegetables)	Packet	80	10	800	10	800	10	800	2400	114							
		Clip board (fruits and vegetables)	no	75	30	2250	20	1500	20	1500	5250	250							
		Hall rent (fruits and vegetables)	day	2500	4	10000	4	10000	4	10000	30000	1429							
		Tape (fruits and vegetables)	Number	250	4	1000	4	1000	0	0	2000	95							
		String (fruits and vegetables)	role	250	10	2500	10	2500	10	2500	7500	357							
		Tie wire (fruits and vegetables)	kg	45	100	4500	200	9000	250	11250	24750	1179							
		Per diem (fruits and vegetables)	per person	500	280	140000	280	140000	280	140000	420000	20000							
		Travel expense (fruits and vegetables)	per person	110	280	30800	280	30800	280	30800	92400	4400							
		Transportation(fruits and vegetables)	per liter	15	400	6000	400	6000	400	6000	18000	857							
		Training and awareness creation for experts- perdiem (forage)	per person	300	28	8400	28	8400	28	8400	25200	1200							
		Capacity building and training for DAs (beekeeping)	per person	1500	7	10500	7	10500	7	10500	31500	1500							
		Capacity building and training for beekeepers	per person	800	161	128800	161	128800	161	128800	386400	18400							
		Training of trainers on poultry production(TOT)	per person	3000	7	21000	7	21000	0	0	42000	2000							
		Farmers training on poultry production	per person	2000	140	280000	140	280000	140	280000	840000	40000							
		Workshop on poultry production & marketing	per workshop	100000	2	200000	2	200000	2	200000	600000	28571							
		Training and awareness creation for experts- -transport cost (forage)	per person	900	28	25200	28	25200	28	25200	75600	3600							
		Training and awareness creation for experts- -perdim for trainers (forage)	per person	500	4	2000	4	2000	6	3000	7000	333							
		Training and awareness creation for experts- -fuel (forage)	liter	17	480	8160	480	8160	480	8160	24480	1166							
		Training of farmers in relation to loan and sav. (meat production)	per person	300	161	48300	161	48300	161	48300	144900	6900							
		Regional and federal experts (training workshop) (meat production)	per workshop	90000	1	90000	1	90000	0	0	180000	8571							
		In country region to region experts (training) (meat production)	per person	300	7	2100	7	2100	7	2100	6300	300							
		In country region to region farmers (training) (meat production)	per person	200	91	18200	91	18200	91	18200	54600	2600							
		Capacity building and training for experts (beekeeping)	per person	5500	7	38500	7	38500	7	38500	115500	5500							
		Closure and improvements of community grazing land-awerness creation(closure, forage	per person	300	28	8400	28	8400	28	8400	25200	1200							
		In country region to region experts (experience sharing) (meat production)	per woreda	10000	7	70000	7	70000	7	70000	210000	10000							
		In country region to region farmers(experience sharing) (meat production)	per person	200	70	14000	70	14000	70	14000	42000	2000							
		Awareness creation for all meat value chain actors and stakeholders (meat production)	per person	1200	28	33600	28	33600	28	33600	100800	4800							
		Establish community based system (by-laws & institutions) for controlled grazing--skilled la	per woreda	4000	2	8000	3	12000	2	8000	28000	1333							
		MoA workshops and awareness creation forums(INRM)	Lumpsum	400000	1	400000	0	0	0	0	400000	19048							
		Region workshops and awareness creation forums(INRM)	Lumpsum	900000	1	900000	0	0	0	0	900000	42857							
		Woreda workshops and awareness creation forums(INRM)	Lumpsum	125000	2	250000	0	0	0	0	250000	11905							
		MoA, training (INRM)	per person	5000	4	20000	0	0	4	20000	40000	1905							
		Region, training (INRM)	per person	5000	16	80000	0	0	16	80000	160000	7619							
		Wereda, training (INRM)	per person	5000	48	240000	0	0	48	240000	480000	22857							
		Experience sharing field tours for farmers(INRM)	per person	500	360	180000	0	0	360	180000	360000	17143							
		Improve Farmers' Training Centers (FTCs) to demonstrate and train farmers on climate pro	Lumpsum/FTC	146250	2	292500	2	292500	0	0	585000	27857							
		Enhancing experts understanding on forestry and related issues	lumpsum	500000	1	500000	1	500000	0	0	1000000	47619							
		Enhance expert capacity in project planning (forest)	lumpsum	525000	1	525000	0	0	0	0	525000	25000							
		Conduct awareness raising activities for local people in forest sector	lumpsum	42000	2	84000	3	126000	2	84000	294000	14000							
		Provision of capacity building training to local people in forest sector	lumpsum	42000	2	84000	3	126000	2	84000	294000	14000							
		Training and awareness raising on operation and maintenance and on efficient potable wat	Per Kebele	40000	7	280000	7	280000	0	0	560000	26667							
		Training and awareness raising on operation and maintenance and on efficient irrigation w	Per Kebele	40000	7	280000	7	280000	0	0	560000	26667							
		Technical advise/support for nurseries (forest)	lumpsum	52500	1	52500	1	52500	0	0	105000	5000							
		Strengthen forest governance at various level	lumpsum	525000	1	525000	1	525000	0	0	1050000	50000							
		Enhance capacities of forestry training institutions in providing skill training for forest gover	lumpsum	525000	1	525000	0	0	0	0	525000	25000							
		Establishment of demonstration plots (forest)	lumpsum	525000	1	525000	0	0	0	0	525000	25000							
		Scaling-up good practices/knowledge for forest governance (forest)	lumpsum	2625000	0	0	1	2625000	0	0	2625000	125000							
Sub-total						**20115926**		**21097104**		**5118990**	**46332020**	**2206287**							
5.2 Monitoring, evaluaiton and learning																			
		Analysis of meteorological station data and satellite data for the period of the study for the relevant sites to build up climate risk parameters and trends (national consultant)	No of days	6300	50	315000	50	315000	50	315000	945000	45000							
		Analysis of the outcomes of the climate smart agriculture pilots (national consultant)	No of days	6300			20	126000	20	126000	252000	12000							
		Performance of the resilient livelihoods against annual climate variability (national consultant)		6300			20	126000	20	126000	252000	12000							
Sub-total						**315000**		**567000**		**567000**	**1449000**	**69000**							
5.3 Communication of results and lessons																			
		Develop a communication strategy (international consultant)	No of days	16800	4	67200					67200	3200							
		Develop a knowledge management stategy (international consultant)	No of days	16800	4	67200					67200	3200							
		Preparation of guidelines and manuals (international consultant)	No of days	16800	20	336000					336000	16000							
		Farmer-to-farmer fora (cross visits, community meetings etc.)	No of days	800			280	224000	280	224000	448000	21333							
		Development of participatory videos (cam corders)	Lumpsum			150000					150000	7143							
		Experience sharing for Woreda experts on climate smart villages and demonstrations (cro	per person	11810	14	165340	14	165340	0	0	330680	15747							
		Experience sharing for Woreda experts on best postharvest handling facilities (crop)	per person	11810	14	165340	14	165340	14	165340	496020	23620							
		Experience sharing for Woreda experts on best soil and water conservation and irrgation f	per person	11810	14	165340	14	165340	14	165340	496020	23620							
		Exposure visit for different stakeholders (experience sharing) perdiem (beekeeping)	per person	2900	28	81200	28	81200	28	81200	243600	11600							
		Exposure visit for different stakeholders (experience sharing) transport (beekeeping)	per person	2000	28	56000	28	56000	28	56000	168000	8000							
		Exposure visit for different stakeholders (experience sharing) accommodation (beekeeping	per person	400	28	11200	28	11200	28	11200	33600	1600							
		Experience sharing among poultry multiplication centres	per person	3500	28	98000	28	98000	28	98000	294000	14000							
		Federal level publication and media	Lumpsum	500000			1	500000	0	0	500000	23810							
		Region level publicaiton and media	Lumpsum	200000	0	0	5	1000000	0	0	1000000	47619							
		Woreda level publication and media	Lumpsum	150000	0	0	7	1050000	0	0	1050000	50000							
Sub-total						**1362820**		**3516420**		**801080**	**5680320**	**270491**							

Cost for component 5						21793746		25180524		6487070	53461340	2545778						
Sub-total for components 1 to 5						76283247		102383167		10514999	189181412	9008639						
Project execution costs (< 9.5% of the total budget requested, before the implementing entity fees)																		
		Sectors: Technical officer one each at MoANR, MoLF, MoWIE, MEFCC (4 persons)	Month	25000	48	1200000	48	1200000	48	1200000	3600000	171428.57						
		Woreda: M & E expert and project facilitator (1 per woreda - 7 persons)	Month	10000	84	840000	84	840000	84	840000	2520000	120000.00						
		Communicty development agents/facilitators (1 at each Kebele)	Per person per year	36000	14	504000	14	504000	14	504000	1512000	72000.00						
		Motor bike: 1 per woreda (ETB 50,000 per bike)	per bike	50000	7	350000		0		0	350000	16666.67						
		Fuel, maintenance and lubricants for Motor Bike: 10000 ETB per bike per year	Per bike per year	10000	7	70000	7	70000	7	70000	210000	10000.00						
		Per diem (50 days per person per year)	Per person per year	15000	11	165000	11	165000	11	165000	495000	23571.43						
		Desk and chair (12000 ETB per person)	Per person	12000	11	132000		0		0	132000	6285.71						
		Lap tops and printers (20000 ETB per person)	Per person	20000	11	220000		0		0	220000	10476.19						
		Communication	Per person per year	5000	11	55000	11	55000	11	55000	165000	7857.14						
		Solar lamps with phone charger for 14 development agents/facilitators	Piece	2000	14	28000		0		0	28000	1333.33						
		Boots and tee shirts for development agents	Lumpsum per person	1000	14	14000		0		0	14000	666.67						
		Stationaries (7,500 ETB per person per year)	Per person per year	7500	11	82500	11	82500	11	82500	247500	11785.71						
		Launching meetings/workshop at woreda level	Per woreda	40000	7	280000												
Sub-total						**3940500**		**2916500**		**2916500**	**9773500**	**465404.76**		5.17%				
Sub-total for components 1 to 5 and project excecution costs											198954912.40	9474043.45						
Project cycle management fee (<8.5% of the total budget)																		
		Project officer (with safeguards expertise) (1)	Month	30000	12	360000	12	360000	12	360000	1080000	51429						
		Management meetings (Steering Committees, etc)	Per meeting	20000	3	60000	3	60000	3	60000	180000	8571						
		Vehicle: Double cabin pick up (630,000 ETB per vehicle)	no.	630000	4	2520000					2520000	120000						
		Vehicle operations cost	Per vehicle per year	120000	4	480000	4	480000	4	480000	1440000	68571						
		Per diem (50 days per person per year)	Per person per year	15000	1	15000	1	15000	1	15000	45000	2143						
		Office furniture (12000 ETB per person)	Per person	12000	1	12000		0		0	12000	571						
		Lap tops and printers (20000 ETB per person)	Per person	20000	1	20000		0		0	20000	952						
		Communication	Per person per year	5000	1	5000	1	5000	1	5000	15000	714						
		Stationaries (7,500 ETB per person per year)	per person per year	7500	1	7500	1	7500	1	7500	22500	1071						
		Baseline survey and six monthly visits	Per year			389200		389200		389200	1167600	55600						
		Launching and closing workshops	Per workshop	500000	1	500000		0	1	500000	1000000	47619						
		Annual review workshops and final workshop	Once a year			122080		122080		122080	366240	17440						
		Mid-term evaluation	Lumpsum					1236480			1236480	58880						
		Final evaluation	Lumpsum							1236480	1236480	58880						
		Audits	Per year	63000	1	63000	1	63000	1	63000	189000	9000						
Sub-total						**4553780**		**2738260**		**3238260**	**10530300**	**501443**		**5.29%**				
Total amount of financing requested						84,777,527		108,037,927		16,669,759	209,485,212	9,975,486						

Climate resilient water planning and monitoring
Cost estimates

		Assumptions			Spending over project duration (in ETB)																	
	Activity code	Description of item	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3						Total cost for all years (ETB)							
					Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)	Quantity	Total Cost (ETB)												
						0		0		0					0							
						0		0		0					0							
						0		0		0					0							
						0		0		0					0							
						0		0		0					0							
						0		0		0					0							
						0		0		0					0							
						0		0		0					0							
Potable water supply						0		0		0					0							
	1.2.1	Prepare detailed design and tender document	LS	100,000.00	1	100000		0		0					100000							
	1.2.2	Conduct geophysical studies	Per Kebele	50,000.00	14	700000		0		0					700000							
	1.2.3	Shallow well drilling complete with 8" uPVC casing installed to a depth of 150 meters	Per Well	1,500,000.00	5	7500000	9	13500000		0					21000000							
	1.2.4	Purchase and install well monitoring devices	Piece	30000		0	7	210000		0					210000							
	1.2.5	Construction of elevated water reservoir and water point	Per Well	100000		0	14	1400000		0					1400000							
	1.2.6	Procurement of complete sets of solar powered submersible pump systems, solar PVs, including all electro-mechanical works	Per Set	400000	5	2000000	9	3600000		0					5600000							
	1.2.7	Installation of pump and electro-mechanical fixtures	Per Set	50000		0	14	700000		0					700000							
	1.2.8	Training and awareness raising on operation and maintenance and on efficient potable water use (reuse, recycling and rationing so that supplies can withstand fluctuations in recharge)	Per Kebele	40000	7	280000	7	280000		0					560000							
supply for Micro						0		0		0					0							
	1.3.1	Tender documents preparation and supervision	LS	100000	1	100000		0		0					100000							
	1.3.2	Geophysical studies	Per Kebele	50000	14	700000		0		0					700000							
	1.3.3	Shallow well drilling complete with 8" uPVC casing installed to a depth of 150 meters - for pressurized irrigation systems	Per Well	1500000	5	7500000	9	13500000		0					21000000							
	1.3.5	Purchase and install drip irrigation system including cannal construction - for pressurized irrigation systems	ha	170000	30	5100000	110	18700000		0					23800000							
	1.3.6	Up-grading of traditional irrigation schemes for hand dug wells	ha	35000		0	28	980000		0					980000							
	1.3.7	Purchase, import and install solar PV with stand including pump and motor - for pressurized irrigation systems	Per Set	400000		0	14	5600000		0					5600000							
	1.3.8	Installation of pump and electro mechanical fixtures - for pressurized irrigation systems	Per Set	50000		0	14	700000		0					700000							
	1.3.9	Construction of handdug well with appropriate concrete rings to a depth of 15 meters	Per Well	100000	8	800000	20	2000000		0					2800000							
	1.3.10	Purchase and install an appropriate handpump (Afridev pumps/Rope and Washer) for 1 ha per handdug well	Per Well	50000	8	400000	20	1000000		0					1400000							
	1.3.11	Training and awareness raising on operation and maintenance and on efficient irrigation water use and by-laws	Per Kebele	40000	7	280000	7	280000		0					560000							
						25460000		62450000		0					87910000							

Type of resource
Consultancy
Car/Truck
Unskilled labor
Med. skilled labor
High skilled labor
Utilities
Equipment and machinery
Maintenance
Buildings
Design works
Chemicals
Transport costs
Other

Cost estimates

		Assumptions	Unit	Unit cost (ETB)	Spending over project duration (in ETB) Year 1 Quantity	Year 1 tal cost (ET	Year 2 Quantity	Year 2 tal cost (ET	Year 3 Quantity	Year 3 ɔtal cost (ETB)	Total cost for 3 years (ETB)	Additional assumptions or more description about item	Assumption about distribution of funding source over the 5-years
	2.1.1	Supporting the supply of basic seeds	number of coopratives	30000	3	90000	4	120000		0	ETB 210,000		
	4.2.2.1	Training of woreda experts on seeds (crop)	per person	9240	6	55440	8	73920		0	ETB 129,360		
	4.2.2.10	Training of Woreda experts on Irrigation Agronomy	per person	9240	6	55440	8	73920		0	ETB 129,360		
To introduce bench te	4.2.2.11	Trainings of DAs on irrigation agronomy	per person	6796	14	95144		0		0	ETB 95,144		
Scaling up of best agronomic and CSA practices	4.2.2.2	Training of Woredas and Kebeles on scaling up of CSA practices (crop)	per person	6796	21	142716	21	142716		0	ETB 285,432		
CA, crop protection an	4.2.2.3	Training of lead farmers from each Kebele on CA, crop rotation, mulching, inter-cropping, use of cover crops and agronomic practices ….(crop)	per person	4530	56	253680	56	253680	56	253680	ETB 761,040		
	4.2.2.4	Provision of seed production and agri-business training for Woreda experts(crop)	per person	9240	6	55440	8	73920		0	ETB 129,360		
some laboratories to b	4.2.2.5	Provision of Seed Production and agri-business training forDA's (crop)	per person	7560	6	45360	8	60480		0	ETB 105,840		
	4.2.2.6	Provision of seed production and agri-business training for coopratives	per person	4580	6	27480	8	36640		0	ETB 64,120		
	4.2.2.7	Training on post-harvest crop loss for Woreda experts	per person	9240	4	36960	3	27720		0	ETB 64,680		
Post-harvest crop loss reduced	4.2.2.8	Training on post-harvest crop loss for DAs	per person	6796	6	40776	8	54368		0	ETB 95,144		
estimated at 30% to be reduced to 15%	4.2.2.9	Training on post-harvest crop loss for farmers	per person	4530	56	253680	56	253680		0	ETB 507,360		
	4.2.3.1	Demonstrations in each woreda (crop)	per demonstration	20000	4	80000	3	60000		0	ETB 140,000		
	4.2.3.2	Experience sharing for Woreda experts on climate smart villages and demonstrations (crop)	per person	11810	14	165340	14	165340		0	ETB 330,680		
	4.2.3.3	Organizing a field day (crop)	per event	2,139,500	2	4279000	2	4279000		0	ETB 8,558,000		
using machineries to h	4.2.3.4	Conduct demonstration of post-harvest technologies (crop)	per event	20000	4	80000	4	80000		0	ETB 160,000		
	4.2.3.5	Experience sharing for Woreda experts on best postharvest handling facilities (crop)	per person	11810	14	165340	14	165340	14	165340	ETB 496,020		
	4.2.3.6	Organizing a field day on post harvest (crop)	per event	2,139,500		0	1	2139500	1	2139500	ETB 4,279,000		
	4.2.3.7	Demonstration of best soil and water harvesting techniques (crop)	per woreda	10000	3	30000	4	40000		0	ETB 70,000		
	4.2.3.8	Experience sharing for Woreda experts on best soil and water conservation and irrgation facilities (crop)	per person	11810	14	165340	14	165340	14	165340	ETB 496,020		
	4.2.3.9	Organizing a field day on soil and water conservation and irrigation (crop)	per event	2,139,500	2	4279000		0		0	ETB 4,279,000		
	4.2.4.1	Provision of technical backstoping and follow up for the coopratives (crop)	Number of rounds	80000	2	160000	2	160000	2	160000	ETB 480,000		
	4.2.4.2	Establishment of coopratives (crop)	number of coopratives	50000	2	100000	5	250000		0	ETB 350,000		
	4.2.4.3	Support formation of youth groups (male and female) to give agricultural mechanization rental & hire services	number of groups	2000000	1	2000000	3	6000000		0	ETB 8,000,000		
	4.2.4.4	Technical backstopping to support the implementation of the activities (crop)	number of rounds	80000	4	320000	3	240000		0	ETB 560,000		
TOTAL											ETB 30,775,560		

USD 1,465,503

Type of resource
Consultancy
Car/Truck
Unskilled labor
Med. skilled labor
High skilled labor
Utilities
Equipment and machinery
Maintenance
Buildings
Design works
Chemicals
Transport costs
Other

Cost estimates

Activity code	Assumptions: Description of item	Unit	Unit cost (ETB)	Spending over project duration (in ETB): Year 1 Quantity	Year 1 Total Cost	Year 2 Quantity	Year 2 Total Cost	Year 3 Quantity	Year 3 Total Cost	Total cost for all years
2.1.10	Potato promotion (Gamet, Tolcha,	tonne	7000	56	ETB 392,000	56	ETB 392,000	56	ETB 392,000	ETB 1,176,000
2.1.5	Purchase and adopt low land fruit	Number	90	4000	ETB 360,000	4000	ETB 360,000	4000	ETB 360,000	ETB 1,080,000
2.1.6	Fruit management tools/scissor	Number	200	600	ETB 120,000	600	ETB 120,000	600	ETB 120,000	ETB 360,000
2.1.8	Purchase cover crops	tonnes	12000	7	ETB 84,000	7	ETB 84,000	7	ETB 84,000	ETB 252,000
2.1.9	Vegetable promotion (carrot, toma	kg	1000	140	ETB 140,000	140	ETB 140,000	140	ETB 140,000	ETB 420,000
4.2.1.79	Woreda Logistic support (WSD)	Lumpsum	500000	1	ETB 500,000	1	ETB 500,000	1	ETB 500,000	ETB 1,500,000
4.2.1.80	Kebele logistic support (FTC)	Lumpsum	80000	1	ETB 80,000	1	ETB 80,000	1	ETB 80,000	ETB 240,000
4.2.3.66	Conduct farmers pee learning/Sc	per person	2500	70	ETB 175,000	70	ETB 175,000	70	ETB 175,000	ETB 525,000
4.2.4.53	Writing pads for workshop (fruits	No	20	280	ETB 5,600	280	ETB 5,600	280	ETB 5,600	ETB 16,800
4.2.4.54	Pen for workshop (fruits and vege	Packet	250	10	ETB 2,500	10	ETB 2,500	10	ETB 2,500	ETB 7,500
4.2.4.55	Printing paper (fruits and vegetab	Pad	130	30	ETB 3,900	30	ETB 3,900	30	ETB 3,900	ETB 11,700
4.2.4.56	Flip chart (fruits and vegetables)	role	140	20	ETB 2,800	20	ETB 2,800	20	ETB 2,800	ETB 8,400
4.2.4.57	Marker (fruits and vegetables)	Packet	80	10	ETB 800	10	ETB 800	10	ETB 800	ETB 2,400
4.2.4.58	Clip board (fruits and vegetables)	no	75	30	ETB 2,250	20	ETB 1,500	20	ETB 1,500	ETB 5,250
4.2.4.59	Hall rent (fruits and vegetables)	day	2500	4	ETB 10,000	4	ETB 10,000	4	ETB 10,000	ETB 30,000
4.2.4.60	Tape (fruits and vegetables)	Number	250	4	ETB 1,000	4	ETB 1,000	0	ETB 0	ETB 2,000
4.2.4.61	String (fruits and vegetables)	role	250	10	ETB 2,500	10	ETB 2,500	10	ETB 2,500	ETB 7,500
4.2.4.67	Tie wire (fruits and vegetables)	kg	45	100	ETB 4,500	200	ETB 9,000	250	ETB 11,250	ETB 24,750
4.2.4.68	Per diem (fruits and vegetables)	per person	500	280	ETB 140,000	280	ETB 140,000	280	ETB 140,000	ETB 420,000
4.2.4.69	Travel expense (fruits and vegeta	per person	110	280	ETB 30,800	280	ETB 30,800	280	ETB 30,800	ETB 92,400
4.2.4.71	Transportation(fruits and vegetab	per liter	15	400	ETB 6,000	400	ETB 6,000	400	ETB 6,000	ETB 18,000

ETB 6,199,700
USD 295,224

Type of resource
Consultancy
Car/Truck
Unskilled labor
Med. skilled labor
High skilled labor
Utilities
Equipment and machinery
Maintenance
Buildings
Design works
Chemicals
Transport costs
Other

2. Benefit estimates

Exchange rate 1 ETB = 0.047619048 USD

Description of item	Year 1 Quantity	Year 1 Unit	Year 2 Quantity	Year 2 Unit	Year 3 Quantity	Year 3 Unit	Year 4 Quantity	Year 4 Unit	Year 5 Quantity	Year 5 Unit
Production of ...										
1. Improved variety potato	30000	Quintal	31500	Quintal	33075	Quintal	34728.75	Quintal	36465.1875	Quintal
2. Tomato	25000	Quintal	26250	Quintal	27562.5	Quintal	28940.625	Quintal	30387.65625	Quintal
3. onion	15000	Quintal	15750	Quintal	16537.5	Quintal	17364.375	Quintal	18232.59375	Quintal
4. Mango	0	Quintal	0	Quintal	0	Quintal	10000	Quintal	10500	Quintal
5. Avocado	0	Quintal	0	Quintal	0	Quintal	7000	Quintal	7350	Quintal

from irrigable land	production (kuntal, local price ,total area of land in hyearly production (in kuntal, 100kg)			
1. Improved variety potato	300	500	100	30000
2. Tomato	250	450	100	25000
5. Avocado	70	1200	50	3500
6. Papaya	120	1000	75	9000

Costs of farmers that are not considered as project costs

Land if rented in (12000 ETB/ha)	12000
Oxen if rented in (400 ETB/ha)	400
Cost of fruit management, compost and fertilizer	7000
Total cost per ha	19400

Cost estimates

Activity code	Assumptions: Description of item	Unit	Unit cost (ETB)	Spending over project duration (in ETB): Year 1 Quantity	Year 1 Total Cost	Year 2 Quantity	Year 2 Total Cost	Year 3 Quantity	Year 3 Total Cost	Total cost for all years
2.2.1	Closure and improvement of community grazing land	per person	200	14	ETB 2,800	14	ETB 2,800	14	ETB 2,800	ETB 8,400
2.2.10	Efficient feed conservation management-materials (molases, plastic bags etc.)	per woreda	20,000	7	ETB 140,000	7	ETB 140,000	7	ETB 140,000	ETB 420,000
2.2.11	Practice stall feeding/cut & carry system-skill upgrading	per person	300	28	ETB 8,400	28	ETB 8,400	28	ETB 8,400	ETB 25,200
2.2.12	Practice stall feeding/cut & carry system-for farmers	per person	200	70	ETB 14,000	70	ETB 14,000	70	ETB 14,000	ETB 42,000
2.2.13	Forage seeds supply	Quintal	50000	8	ETB 400,000	6	ETB 300,000	7	ETB 350,000	ETB 1,050,000
										ETB 0
										ETB 0
2.2.16	Sheep breed (imported)	number	6000	14	ETB 84,000	14	ETB 84,000	14	ETB 84,000	ETB 252,000
2.2.17	Goat breed (imported)	number	4500	14	ETB 63,000	14	ETB 63,000	14	ETB 63,000	ETB 189,000
2.2.2	Closure and improvement of community grazing land skilled labor time	number	300	28	ETB 8,400	28	ETB 8,400	28	ETB 8,400	ETB 25,200
2.2.3	Closure and improvement of community grazing land-fertilizer purchase(closure, forage)	Quintal	1000	140	ETB 140,000	140	ETB 140,000	140	ETB 140,000	ETB 420,000
2.2.30	Small chicken-egg hatchery promotion	per kebele	3,000	14	ETB 42,000	14	ETB 42,000	14	ETB 42,000	ETB 126,000
2.2.31	Promotion of poultry products as food and conducting symposium on different food preparation	per event	300,000	2	ETB 600,000	2	ETB 600,000	3	ETB 900,000	ETB 2,100,000
2.2.32	Poultry value chain technical support	per Woreda	25,000	7	ETB 175,000	7	ETB 175,000	7	ETB 175,000	ETB 525,000
2.2.6	Enhanced pasture management/rangeland management skill upgrading	per person	300	70	ETB 21,000	70	ETB 662	70	ETB 21,000	ETB 42,662
2.2.8	Efficient feed conservation management (storage, silage, hay making) skills to farmers/pastoralists	per person	200	70	ETB 14,000	70	ETB 14,000	70	ETB 14,000	ETB 42,000
2.2.9	Efficient feed conservation management skill upgrading	per person	300	28	ETB 8,400	28	ETB 8,400	28	ETB 8,400	ETB 25,200
4.2.2.1	Training and awareness creation for experts- perdiem (forage)	per person	300	28	ETB 8,400	28	ETB 8,400	28	ETB 8,400	ETB 25,200
4.2.2.10	Capacity building and training for DAs (beekeeping)	per person	1500	7	ETB 10,500	7	ETB 10,500	7	ETB 10,500	ETB 31,500
4.2.2.11	Capacity building and training for beekeepers	per person	800	161	ETB 128,800	161	ETB 128,800	161	ETB 128,800	ETB 386,400
4.2.2.13	Training of trainers on poultry production(TOT)	per person	3,000	7	ETB 21,000	7	ETB 21,000		ETB 0	ETB 42,000
4.2.2.14	Farmers training on poultry production	per person	2,000	140	ETB 280,000	140	ETB 280,000	140	ETB 280,000	ETB 840,000
4.2.2.15	Workshop on poultry production & marketing	per workshop	100,000	2	ETB 200,000	2	ETB 200,000	2	ETB 200,000	ETB 600,000
4.2.2.2	Training and awareness creation for experts- -transport cost (forage)	per person	900	28	ETB 25,200	28	ETB 25,200	28	ETB 25,200	ETB 75,600
4.2.2.3	Training and awareness creation for experts- -perdim for trainers (forage)	per person	500	4	ETB 2,000	4	ETB 2,000	6	ETB 3,000	ETB 7,000
4.2.2.5	Training and awareness creation for experts- -fuel (forage)	liter	17	480	ETB 8,160	480	ETB 8,160	480	ETB 8,160	ETB 24,480
4.2.2.6	Training of farmers in relation to loan and sav. (meat production)	per person	300	161	ETB 48,300	161	ETB 48,300	161	ETB 48,300	ETB 144,900
4.2.2.7	Regional and federal experts (training workshop) (meat production)	per workshop	90,000	1	ETB 90,000	1	ETB 90,000		ETB 0	ETB 180,000
4.2.2.8	In country region to region experts (training) (meat production)	per person	300	7	ETB 2,100	7	ETB 2,100	7	ETB 2,100	ETB 6,300
4.2.2.9	In country region to region farmers (training) (meat production)	per person	200	91	ETB 18,200	91	ETB 18,200	91	ETB 18,200	ETB 54,600
4.2.2.9	Capacity building and training for experts (beekeeping)	per person	5500	7	ETB 38,500	7	ETB 38,500	7	ETB 38,500	ETB 115,500
4.2.3.1	Closure and improvements of community grazing land-awerness creation(closure, forage production)	per person	300	28	ETB 8,400	28	ETB 8,400	28	ETB 8,400	ETB 25,200
4.2.3.1	In country region to region experts (experience sharing) (meat production)	per woreda	10000	7	ETB 70,000	7	ETB 70,000	7	ETB 70,000	ETB 210,000
4.2.3.2	In country region to region farmers(experience sharing) (meat production)	per person	200	70	ETB 14,000	70	ETB 14,000	70	ETB 14,000	ETB 42,000
4.2.3.3	Awareness creation for all meat value chain actors and stakeholders (meat production)	per person	1200	28	ETB 33,600	28	ETB 33,600	28	ETB 33,600	ETB 100,800
4.2.3.4	Exposure visit for different stakeholders (experience sharing) perdiem (beekeeping)	per person	2900	28	ETB 81,200	28	ETB 81,200	28	ETB 81,200	ETB 243,600
4.2.3.5	Exposure visit for different stakeholders (experience sharing) transport (beekeeping)	per person	2000	28	ETB 56,000	28	ETB 56,000	28	ETB 56,000	ETB 168,000
4.2.3.6	Exposure visit for different stakeholders (experience sharing) accommodation (beekeeping)	per person	400	28	ETB 11,200	28	ETB 11,200	28	ETB 11,200	ETB 33,600
4.2.3.8	Experience sharing among poultry multiplication centres	per person	3,500	28	ETB 98,000	28	ETB 98,000	28	ETB 98,000	ETB 294,000
4.2.4.1	Establish community based system (by-laws & institutions) for controlled grazing--skilled labour techinical s	per woreda	4000	2	ETB 8,000	3	ETB 12,000	2	ETB 8,000	ETB 28,000
										ETB 8,971,342
										USD 427,207

0.027842926

Costs of Integrated Natural Resource Management (INRM)

	Activity code	Assumptions			Spending over project duration (in ETB)										Total cost for all years						Assumption about distribution of funding source over the 5-years
		Description of item	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3												
					Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost											
Institutional strengthening and capacity building	4.2.2.51	Promotion & awareness creation (INRM)																			
	4.2.2.52	Launching programme workshops and awareness creation forums(INRM)																			
	4.2.2.53	MoA workshops and awareness creation forums(INRM)	Lumpsum	400,000	1	ETB 400,000		ETB 0		ETB 0					ETB 400,000						
	4.2.2.54	Region workshops and awareness creation forums(INRM)	Lumpsum	900,000	1	ETB 900,000		ETB 0		ETB 0					ETB 900,000						
	4.2.2.55	Woreda workshops and awareness creation forums(INRM)	Lumpsum	125,000	2	ETB 250,000		ETB 0		ETB 0					ETB 250,000						
	4.2.3.56	Publications and media(INRM)				ETB 0		ETB 0		ETB 0					ETB 0						
	4.2.3.57	MoA, publications and media(INRM)	Lumpsum	500,000		ETB 0	1	ETB 500,000		ETB 0					ETB 500,000						
	4.2.3.58	Region, publications and media(INRM)	Lumpsum	300,000		ETB 0	1	ETB 300,000		ETB 0					ETB 300,000						
	4.2.3.59	Woreda, publications and media(INRM)	Lumpsum	150,000		ETB 0	1	ETB 150,000		ETB 0					ETB 150,000						
	4.2.2.62	MoA, training (INRM)	per person	5,000	4	ETB 20,000		ETB 0	4	ETB 20,000					ETB 40,000						
	4.2.2.63	Region, training (INRM)	per person	5,000	16	ETB 80,000		ETB 0	16	ETB 80,000					ETB 160,000						
	4.2.2.64	Wereda, training (INRM)	per person	5,000	48	ETB 240,000		ETB 0	48	ETB 240,000					ETB 480,000						
	4.2.4.32	Experience sharing field tours for farmers(INRM)	per person	500	360	ETB 180,000		ETB 0	360	ETB 180,000					ETB 360,000						
	4.2.1.35	Improve Farmers' Training Centers (FTCs) to demonstrate and train farmers on climate proof measures(INRM)	Lumpsum/FTC	146,250	2	ETB 292,500	2	ETB 292,500		ETB 0					ETB 585,000						
Development of the natural resource base and management of common property resources	3.2.1.1a	Upper watershed treatment with soil and water conservation measures(INRM)				ETB 0		ETB 0		ETB 0					ETB 0						
	3.2.1.2a	Physical and biological SWC measures(INRM)	ha	17,107	70	ETB 1,197,504	70	ETB 1,197,504		ETB 0					ETB 2,395,008						
	3.2.1.3a	Area closure for enhanced natural regeneration(INRM)	ha	10,692	14	ETB 149,688	14	ETB 149,688		ETB 0					ETB 299,376						
	3.2.1.4a	Upper watershed gully treatment(INRM)	ha	4,990	28	ETB 139,709	28	ETB 139,709	28	ETB 139,709					ETB 419,126						
	3.2.1.5a	Rangeland management in pastoral watersheds(INRM)	ha	12,500	21	ETB 262,500	21	ETB 262,500	21	ETB 262,500					ETB 787,500						
	3.2.1.6a	Nursery establishment or upgrading (INRM)	Lumpsum	750,000	5	ETB 3,750,000		ETB 0		ETB 0					ETB 3,750,000						
	3.2.1.7a	Seed, seedling production, planting(INRM)				ETB 0		ETB 0		ETB 0					ETB 0						
	3.2.1.8a	Purchase of seeds(INRM)	Quintal	400	280	ETB 112,000	280	ETB 112,000	280	ETB 112,000					ETB 336,000						
	3.2.1.9a	Seedling production/Tree and grass seedling planting/direct sowing with grass and tree seeds(INRM)	Lumpsum	475,000	2	ETB 950,000		ETB 0		ETB 0					ETB 950,000						
	3.2.1.10a	Provision of hand tools(INRM)	Lumpsum	150,000	2	ETB 300,000		ETB 0		ETB 0					ETB 300,000						
	3.2.1.11a	Utilization plan for closed areas(INRM)	Lumpsum	130,000	1	ETB 130,000		ETB 0		ETB 0					ETB 130,000						
Farmland treatment and homestead development	3.1.1	Physical moisture and soil conservation structures(INRM)	ha	9,504	70	ETB 665,280	70	ETB 665,280		ETB 0					ETB 1,330,560						
	3.1.2	Biological conservation measures (e.g. grass strips, hedges, planting of physical measures)(INRM)	ha	14,256	70	ETB 997,920		ETB 0		ETB 0					ETB 997,920						
	3.1.3	Farmland gully treatment(INRM)	ha	11,880	35	ETB 415,800	35	ETB 415,800		ETB 0					ETB 831,600						
	3.1.4	Introducing and enhancing agroforestry(INRM)				ETB 0		ETB 0		ETB 0					ETB 0						
	3.1.5	Homestead multi-storey agro-forestry and soil conservation measures (INRM)	ha	7,128	7	ETB 49,896	7	ETB 49,896	7	ETB 49,896					ETB 149,688						
	3.1.6	Nurture traditional agroforestry scattered trees on farmlands (Faihderbia, Croton, etc)(INRM)	ha	4,752	7	ETB 33,264	7	ETB 33,264	7	ETB 33,264					ETB 99,792						
	3.1.7	Establish wind breaks/shelter belts and farm boundaries(INRM)	Lumpsum	62,500	2	ETB 125,000	3	ETB 187,500	2	ETB 125,000					ETB 437,500						
															ETB 17,339,070						
															USD 825,670						

Type of resource
Consultancy
Car/Truck
Unskilled labor
Med. skilled labor
High skilled labor
Utilities
Equipment and machinery
Maintenance
Buildings
Design works
Chemicals
Transport costs
Other

Cost estimates

Component	Sub-component	Main-activity	Sub-activity	Activity code	Description of item	Unit	Unit cost (ETB)	Year 1		Year 2		Year 3		Total cost for all years
								Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	
Afforestation and reforestation	1.1. Rehabilitation of ha of degraded forest lands	**1.1.1. Afforesation/reforestation of 1,600 ha ofdegraded forestland**	***1.1.1.1. Seedling production***	***3.2.17***	Seed purchase (0.5 kg seed/ha) (forest)	kg	210	240	ETB 50,400	240	ETB 50,400	160	ETB 33,600	ETB 134,400
			spacing =2m x 2m	***3.2.18***	Pot purchase (1 kg/500 seedlings) (forest)	kg	52.5	2400	ETB 126,000	2400	ETB 126,000	1600	ETB 84,000	ETB 336,000
				3.2.19	Media preparation (5 person/m3/ha)(forest)	m3	157.5	480	ETB 75,600	480	ETB 75,600	320	ETB 50,400	ETB 201,600
				3.2.23	Chemicals (1kg/25000 pots) (forest)	kg	210	48	ETB 10,080	48	ETB 10,080	32	ETB 6,720	ETB 26,880
			1.1.1.2. Establishment of plantation	***3.2.25***	Biophysical baseline data collection for plantation (3 person/ha) (forest)	person day	31.5	1440	ETB 45,360	1440	ETB 45,360	960	ETB 30,240	ETB 120,960
				3.2.27	Seedling transportation for plantation (1 truck/50000 pots) (forest)	truck	2100	24	ETB 50,400	24	ETB 50,400	16	ETB 33,600	ETB 134,400
Capacity building	**4.1. Enhance institutional capacity building**	**4.1.1. Strengthen institutional infrastructural capacity**	***4.1.1.1. Establishment of nurseries***	***3.2.28***	Nursery construction (store, fencing, etc)(forest)	**lumpsum**	**262500**	**1**	ETB 262,500	1	ETB 262,500		ETB 0	ETB 525,000
				3.2.29	Land and bed preparation for nurseries (forest)	**lumpsum**	**105000**	**1**	ETB 105,000	1	ETB 105,000		ETB 0	ETB 210,000
				3.2.30	Provision of nursery tools and equipments (forest)	**lumpsum**	**157500**	**1**	ETB 157,500	1	ETB 157,500		ETB 0	ETB 315,000
				4.1.1.1a	Technical advise/support for nurseries (forest)	**lumpsum**	**52500**	**1**	ETB 52,500	1	ETB 52,500		ETB 0	ETB 105,000
		4.1.2. Strengthen institutional governance/technical capacity	***4.1.2.1. Forest governance***	***4.1.1.1***	Strengthen forest governance at various level	**lumpsum**	**525000**	**1**	ETB 525,000	1	ETB 525,000		ETB 0	ETB 1,050,000
				4.2.1.2	Enhance capacities of forestry training institutions in providing skill training for forest governance	**lumpsum**	**525000**	**1**	ETB 525,000					ETB 525,000
				4.2.1.3	Establishment of demonstration plots (forest)	**lumpsum**	**525000**	**1**	ETB 525,000				ETB 0	ETB 525,000
				4.2.3.1	Scaling-up good practices/knowledge for forest governance (forest)	**lumpsum**	**2625000**		ETB 0	1	ETB 2,625,000		ETB 0	ETB 2,625,000
			***4.1.2.3. H*uman**	***4.2.2.1***	Enhancing experts understanding on forestry and related issues	**lumpsum**	**500000**	**1**	ETB 500,000	1	ETB 500,000		ETB 0	ETB 1,000,000
				4.2.2.2	Enhance expert capacity in project planning (forest)	**lumpsum**	**525000**	**1**	ETB 525,000		ETB 0		ETB 0	ETB 525,000
			4.2.1.2. Enhancing the resilience of vulnerable local people	***4.2.2.3***	Conduct awareness raising activities for local people in forest sector	**lumpsum**	**42000**	**2**	ETB 84,000	3	ETB 126,000	2	ETB 84,000	ETB 294,000
				4.2.2.4	Provision of capacity building training to local people in forest sector	**lumpsum**	**42000**	**2**	ETB 84,000	3	ETB 126,000	2	ETB 84,000	ETB 294,000
			Total						**ETB 3,703,340**		**ETB 4,837,340**		**ETB 406,560**	**ETB 8,947,240**

*Nursery tools (wateringg can, spad, mattock, hand saw, hammer, scicle, wheal barrow, sieve, Nursery inputs (propagation material, polyethen tube, sand, stone, forest soil, cement, planting material, chemicals agains pest and disease) USD 426,059

**can serve all components ETB 8,947,240

+lumpsum payment per year ETB 426,059.05

ADAPTATION FUND

Climate Smart Integrated Rural Development Project

Adaptation Fund

ENVIRONMENT AND SOCIAL MANAGMENT FRAMEWORK

July, 2016

Outline

Abbreviations

AF	Adaptation Fund
CDA	Community Development Agent
CRGE	Climate Resilient Green Economy
CSA	Climate Smart Agriculture
DoA	Delegation of Authority
DRM	Disaster Risk Management
EIA	Environment Impact Assessment
EIO	Ethiopian Institute of Ombudsman
EMP`	Environment Management Plan
EPA	Environment Protection Authority
ESIA	Environment and Social Impact Assessment
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
ESS	Environment and Social Safeguard
GHG	Green house Gases
GOE	Government of Ethiopia
Kebele	Sub-district/smallest unit of local government with average population of 5000.
M&E	Monitoring and Evaluation
MoANR	Ministry of Agriculture and Natural Resources
MoEFCC	Ministry of Environment Forest and Climate Change
MoFEC	Ministry of Finance and Economic Cooperation
MoLF	Ministry of Livestock and Fisheries
MoWIE	Ministry of Water Irrigation and Electicity
PCU	Project Coordination Unit
PGHO	Public Grievance Hearing Office
PPP	Private Public Partnership
PS	Principles
PV	Photovoltaic
SWC	Soil and Water Conservation
ToR	Terms of Reference
Woreda	District with average population of about 100,000.

i. Executive Summary

Ethiopia's "Climate Smart Integrated Rural Development Project" referred herein after as **'the project'**, is a three year project involving 14 Kebeles/sub-Woredas, in seven Woredas/Districts selected from 6 Regional States and one City Administration.

The overarching strategy of the project is to manage the risks from recurring droughts, floods, landslides and erosion – both from current risks and under future climate change - through an integrated water, agriculture and natural resource management nexus approach. This is complemented with a low carbon, climate resilient livelihoods diversification interventions. The project is to be implemented in climate sensitive and vulnerable areas of Ethiopia.

The envisaged project is structured around five innovative components that include: Component 1: Climate smart resilient system and project design; Component 2: Climate resilient integrated use of water resources; Component 3: Climate smart agriculture – land – water - forest integration; Component 4: Resilient livelihood diversification; Component 5: Capacity building, monitoring, evaluation and learning. The exact combination of activities to be implemented in each Woreda will depend on local circumstances and needs.

As part of the requirement of the Adaptation Fund (AF), an assessment and management of environmental and social impacts i,e, Environmental and Social Management Framework(ESMF) shall be an integral part of the project proposal.. The ESMF is prepared in line with the relevant the AF policies on social and environmental management and also takes into account the relevant Government of Ethiopia (GoE) policies, legal and institutional framework related to environmental and social assessment.

The **major social benefits** of the project include increased productivity of livelihoods and their capacity to adapt to climate change , provision of employment opportunities to local populations, provision of direct employment during the construction phase and at operational stage of subprojects such as ponds construction, access roads to water facilities, irrigation sub projects and indirect employment through aspects such as operation of water facilities and maintenance activities which will offer greater job opportunity over a longer period of time.

The project has an explicit **learning component** that intends to build the capacity of the local communities and will provide opportunities for scaling up of innovative approaches and interventions in off project sites. This aspect will generate substantial social benefits in terms of enhancing local planning capacity , community involvement in decision making and will benefit wider communities later when innovative approaches are scaled up.

The overarching strategy of the project is to manage the risks from recurring droughts, floods, landslides and erosion – both from current risks and under future climate change - through an integrated water, agriculture and natural resource management nexus approach. enhance climate smart integrated water management, providing a reliable

source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, managing the watershed through physical and biological interventions such as bunds, trenches, terraces and afforestation and reforestation practices.

Water supply systems under this program will ensure that the general public in the targeted areas have access to clean water supply, a pre-requisite for health and sanitation. In promoting irrigation practice, the project will offer opportunities for high value crop productions that will increase the income of rural farmers resulting in enhancing their quality of life.

Improved animal husbandry along with the implementation of safe guard measures will enhance the productivity of farmers increasing their income and accruing health benefits from consuming the various products of domestic animals. This is complemented with a low carbon, climate resilient livelihoods diversification interventions. The project is to be implemented in climate sensitive and vulnerable areas of Ethiopia. The value chain approach that ensures investment in production is complemented with efforts to ensure access to markets, will greatly benefit local communities in securing sustained income.

Increased access to credit facilities will enhance the productive capacity of farmers, while conservation measures will result in increasing water yield of wells and springs, soil fertility improvement which will contribute to increased production and improved health of communities. Agro-forestry will increase the resilience of farmers due to the availability of multiple crops in their fields.

The **environmental benefits** of planned conservation structures include protection of soil against damage due to excessive runoff, increase in yield of springs and water wells and soil erosion will be avoided.Better productivity on less tilled land due to improved seeds will also contribute to soil conservation. Conservation structures are basically environment enhancing projects and agro-forestry provides sheds to plants, conserve water and protects from soil erosion.

The potential adverse impacts identified include potential risk of import of seeds of alien species along with basic seeds, potential impact resulting from the expropriation of land for conservation and planting activities; potential social impact as a result of change of land use such as changing from mono crop production to agro-forestry , possible farmers resistance due to long gestation period of fruit trees to accrue benefits, generation of solid waste (hazardous and non hazardous) and site level infrastructure construction resulting in noise and dust pollution, competition in water use between domestic and irrigation use, water logging and salinization due to irrigation mal practice and possible conflicts generated due to benefit sharing of services and products of project interventions.Appropriate mitigation measures are provided in section 11 of the report.

1. Introduction

Ethiopia's "Climate Smart Integrated Rural Development Project" referred herein after as **'the project'**, is a three year project involving 14 Kebeles/sub-Woredas, in seven Woredas/Districts selected from 6 Regional States and one City Administration.

The overarching strategy of the project is to manage the risks from recurring droughts, floods, landslides and erosion – both from current risks and under future climate change - through an integrated water, agriculture and natural resource management nexus approach. This is complemented with a low carbon, climate resilient livelihoods diversification interventions. The project is to be implemented in climate sensitive and vulnerable areas of Ethiopia.

The project is structured around five innovative components that combine to deliver these objectives.

- Component 1: Climate smart resilient system and project design
- Component 2: Climate resilient integrated use of water resources
- Component 3: Climate smart agriculture – land – water - forest integration
- Component 4: Resilient livelihood diversification
- Component 5: Capacity building, monitoring, evaluation and learning.

Component 1: Climate smart resilient system and project design

This component of the project aims to integrate climate smart planning, with multi-sectoral approaches, which are grounded in local community development plans and views. The project also adopts the use of community development officers ('community animators') to embed the project within the local community, i.e. within each Kebele. To advance this, a series of activities are proposed that build the integrated planning approach. The project starts with an initial phase of climate smart planning, resulting in the finalisation of the design and feasibility activities. These would take place during the first 3 – 4 months of the project and would embed the project within local development plans and governance, deliver the integrated approach across the team and co-develop the final activities with the local communities.

The outcome of this component is **"Climate smart development plans are designed and implemented at the local level"**

Component 2: : **Climate resilient integrated use of water resources**

This component is designed to enhance climate smart integrated water management, providing a reliable source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, but doing so in a way that introduces green technologies and ensures long-term climate resilience, i.e. consistent with Ethiopia's national CRGE strategy which seeks to build resilience and at the same time reduce GHG emissions.

The outcome of this component is **"Food security assured, school enrollment increased, health improved."**

Component 3. Climate smart agriculture (CSA) and land-water-forest integration

This component focuses on climate smart agriculture, as a low regret adaptation option that helps reduce current climate vulnerability and builds resilience to future climate change. A key innovation, however, is the introduction of CSA from the perspective of land-water-forest integrated solutions. This component thus focuses on managing the watershed through physical and biological interventions such as bunds, trenches, terraces and afforestation and reforestation practices.

The outcome of this component is "**Watersheds' rehabilitated through conservation measures and climate smart agriculture leading to improved ecosystem."**

Component 4 Resilient livelihood diversification

This component seeks to help communities that have high climate vulnerability to diversify their current production methods and indeed their overall livelihoods. A key innovation is that this diversification is targeted towards activities that are consistent with climate resilient (but also green economy) activities, so they align with the priorities identified in the national CRGE strategy, and link bottom-up community diversification with national policy. In looking at these diversification strategies, a key innovation will be to take a value chain approach, to ensure investment in production is complemented with efforts to ensure access to markets etc.

The outcome of this component is**,"Livelihoods of the local communities is diversified and improved market access ensured."**

Component 5. Capacity building, monitoring, evaluation and learning

This component will focus on capacity building, and implementing the monitoring and evaluation components. A particularly innovative additional element will be to add an explicit learning component to the project. Finally, it will bring together the lessons from the overall project and communicate these to relevant stakeholders.

The outcome of this component is**," Knowledge transferred and lessons learnt captured at all levels through results based monitoring and evaluation**."

As part of the requirement of the Adaptation Fund (AF), an assessment and management of environmental and social impacts i,e, Environmental and Social Management Framework(ESMF) shall be an integral part of the project proposal.. The ESMF is prepared in line with the relevant AF policies on social and environmental management and also takes into account the relevant Government of Ethiopia (GoE) policies, legal and institutional framework related to environmental and social assessment. The Adaptation Fund Principles and the relevant provisions of these principles are closely followed in the development of the ESMF.

The report introduces the project in Section 1 and provides a brief on the objectives and scope of work in Section 2 and 3 followed by Section 4 which treats the national environment policies and laws along with alignment of these policies with AF Principles. followed by Section 5 which provides a brief on project description. Section 6introduces the baseline situation for which the details are provided in Annex 1. Section 7outlines the implementation arrangement and section 8 provides key issues such as eligibility criteria, grievance mechanism and consultation and public disclosure. Section 9 treats the overall social and environmental benefits, Section 10 outlines the ESIA process followed by Section 11which a table describing the potential impacts and mitigation measures followed by Section 12, a brief explanation of ESMP in a tabulated format. Section 13is a tabulated monitoring plan and Section14indicates responsibilities for ESMF implementation and finnaly Section 15 outline the training plan.

2. Objective of the ESMF

The ESMF supports an examination of the risks and potential impacts associated with projects or activities under the planned CDKN proposed project entitled **"Climate Smart Integrated Rural Development**" The Framework will set out the principles, guidelines, and procedures to assess environmental and social risks/impacts, and proposes measures to reduce, mitigate, and/or offset potential adverse environmental and social impacts and enhance positive impacts and opportunities of the above mentioned project. In the event that a particular sub project/activity happens to require a full EIA as per national guidelines, the ESMF provides the draft ToR, scope of the EIA, i.e main issues to be considered in the EIA and procedures for reviewing EIA reports and monitoring mechanisms.

The objectives of the ESMF are to:

- Establish clear procedures and methodologies for the environmental and social assessment, review, approval and implementation of investments to be financed under the project when the details of the project become available. These procedures and methodologies will be embodied in ESIA and EMP.

- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to project investments;

- Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF; and

- Inform project planning and design process by comparing potential impacts of alternative project activities.

3. Scope of the ESMF

The ESMF supports an examination of the risks and potential impacts associated with projects or activities under the planned AF proposed project entitled "Climate Smart Integrated Rural Development." The Framework will set out the principles, guidelines, and procedures to assess environmental and social risks/impacts, and proposes measures to reduce, mitigate, and/or offset potential adverse environmental and social impacts and enhance positive impacts and opportunities of the above mentioned project.

In line with the requirements of the AF, the main provisions of scope of work include:

a) Develop an Environment and Social Safeguards (ESS) screening checklist that will be used by Ministry of Finance and Economic Cooperation (MoFEC) assigned experts mission to the 7 Woreda's below;
   i. Amhara Region - **Tenta woreda**
   ii. Oromia Region – **Adama** and **Alelitu Woreda**
   iii. Tigray Region - **Raya Azobo**
   iv. SNNP Region– **Lok Abaya Woreda**
   v. Harari Region– **Erer Woreda**
   vi. Diredawa Region- **Wahil Woreda**

b) Develop an Environment and Social Safeguard Screening report as per the result of the ESS screening checklist;
c) Develop a comprehensive Environmental and Social Management Framework (ESMF) on the 7 Woredas above as per the Adaptation Fund requirements and standards that will be submitted along with the proposal prepared for funding from the Adaptation Fund.
d) The ESMF report shall be guided by the "Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy".

Since at this stage the exact locations, scope, designs and nature of project activities remain unknown, an Environment and Social Management Framework (ESMF) will be appropriate as also indicated in the scope of work.

4. National Environment Policies and Laws

4.1. Implications of National Laws on Environmental and Social Aspects of the Project

The Constitution

The project components and outputs are in line with many of the provisions of the Constitution of the Federal Democratic Republicof Ethiopia.

Many aspects of the project satisfy the constitutional provision of *Article 43 (4)* that states , "*The basic aim of development activities shall be toenhance the capacity of citizens for development and to meet their basic needs." The p*roject component on "integrated climate resilient and low carbon design and planning" is specifically designed to build capacity of communities to plan and implement community based projects.

The land requirements of the project for various activities such as afforestaion and irrigation is assured through the provision of Article 40 (3) which states *," The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.".*

The project activities and their outputs are in line with Article 41 (6) which states,"*The State shall pursue policies which aim to expand job opportunities for the unemployed and the poor and shall accordingly undertake programmes and public works projects."*

The consultations so far conducted by the project proponents and the requirement of the ESMF for public disclosure and consultations with affected parties fulfills the requirements of the constitutional provision of Article 43 (2) that states *"Nationals have the right to participate in nationaldevelopment and, in particular, to be consulted with respect to polices and projects affecting their community."* Article 92 refers to the state's responsibility to design and implement programs and projects that do not damage the environment and establishes the joint responsibility of the government and citizens to protect the environment.

Finally the ESMF is an instrument that attempts to fulfill the provision of Article 44 (1) that states *," All persons have the right to a clean and healthy environment."*

The Environment Policy

The Environmental Policy of Ethiopia (EPE) was approved on April 2,1997 by the Council of Ministers and consists of 10 sectoral and 10 cross-sectoral policies, The Environmental Policy of Ethiopia has embraced the concept of sustainable development. As its goal, the Environment Policy of Ethiopia states "*to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs*."

Some of the policy provisions relevant to the Climate Smart Integrated Rural Development project include the following:

- *To promote in drought-prone and low rainfall areas water conservation which is as important as physical soil conservation for more secure and increased biomass production, including crop production;*
- *To develop forestry on the farm, around the homestead and on eroding and/or eroded hillsides in order to increase the stock of trees for fuel wood, construction material, implements and crafts, for forage and for other tree products*
- *To undertake full environmental, social and economic impact assessments of all existing irrigation schemes in the rangelands and wherever needed establish programmes of correcting their negative environmental, social and economic impacts.*
- *To recognize that public consultation is an integral part of EIA and ensure that EIA procedures make provision for both an independent review and public comment before consideration by decision makers;*
- *To ensure that forestry development strategies integrate the development, management and conservation of forest resources with those of land and water resources, energy resources, ecosystems and genetic resources, as well as with crop and livestock production;*
- *To ensure that all phases of environmental and resource development and management, from project conception to planning and implementation to monitoring and evaluation are undertaken based on the decisions of the resource users and managers;*

The former Environment Protection Authority (EPA) has issued several guidelines including the: (i) "EIA Guideline Document of the EPA" (2000), (ii) Procedural EIA Guideline of EPA (2003), and (iii) 2004 EPA's Environmental impact assessment guidelines for sectors including: (a) Road and railway; (b) Fisheries projects, (c) Forestry, (d) Hydropower production, transportation and distribution, (e) Irrigation projects, (f) Livestock and rangelands, (g) Mineral and petroleum operation projects, (h) Water supply, and (i) Sustainable Industrial Zone/Estate Development.

Proclamation 299/2002, Environmental Impact Assessment

The Environmental Impact Assessment (EIA) Proclamation makes EIA a mandatory requirement for the implementation of major development projects, programs and plans. The Proclamation is a tool for harmonizing and integrating environmental, economic, cultural, and social considerations into decision making processes in a manner that promotes sustainable development. The why and how to prepare, methodologies, and to whom the report is submitted are described in this law.

Proclamation 300/2002, Environmental Pollution Control

Complementary to the EIA legislation, which requires developmental activities to give considerations to environmental impacts before their establishment, the Pollution Control Proclamation requires ongoing activities to implement measures that would

reduce their degree of pollution to a set limit or quality standard. Thus, one of the dictates of the legislation is to ensure through inspection the compliance of ongoing activities with the standards and regulations of the country i.e. environmental audit.

Proclamation 513/2007, SolidWaste Management

Proclamation 513/2007 aims to promote community participation in order to prevent adverse effects and enhance benefits resulting from solid waste. It provides for preparation of solid waste management action plans by urban local governments.

DIRECTIVE NO.1/ 2008:A Directive Issued to Determine Projects Subject to Environmental Impact Assessment

This directive provides a list of projects that are required to undertake full EIAs.
There are also draft EIA Guideline, July 2000 and Guideline for Environmental Management Plan), May 2004 that are not included here because they are still in a draft form.

The CRGE Strategy

The CRGE strategy focuses on four pillars that will support Ethiopia's developing green economy:

a) Adoption of agricultural and land use efficiency measures
b) Increased GHG sequestration in forestry, i.e., protecting and re-establishing forests for their economic and ecosystem services including as carbon stocks
c) Deployment of renewable and clean power generation
d) Use of appropriate advanced technologies in industry, transport, and buildings.

In general four initiatives for fast-track implementation have been selected under the CRGE: (i) exploiting Ethiopia's vast hydropower potential; (ii) large-scale promotion of advanced rural cooking technologies; (iii) efficiency improvements to the livestock value chain; and (iv) reducing Emissions from Deforestation and forest Degradation (REDD).

4.2. Alignment of National Policies and Laws with the Adaptation Fund Environmental and Social Policy

The Adaptation FundPrinciples that always apply are**Principle 1** - compliance with the law; **Principle 4**- human rights: and **Principle 6** - core labour rights;

AF Principle 1: Compliance with the Law. Projects/programs supported by the Fund shall be in compliance with all applicable domestic and international law.

Ethiopia's Environmental Policy defines the environmental and social objectives and principles that guide the project to achieve sound environmental and social performance; while the Environmental Impact Assessment Proclamation (Proclamation no. 299/2002)

sets a process for identifying the environmental and social risks and impacts of the project;

The project components and outputs are in line with many of the provisions of the Constitution of the Federal Democratic Republic of Ethiopia.

Many aspects of the project satisfy the constitutional provision of *Article 43 (4)* that states , "*The basic aim of development activities shall be to enhance the capacity of citizens for development and to meet their basic needs." The p*roject component on "integrated climate resilient and low carbon design and planning" is specifically designed to build capacity of communities to plan and implement community based projects.

The land requirements of the project for various activities such as afforestaion and irrigation is assured through the provision of Article 40 (3) which states *," The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.".*

The project activities and their outputs are in line with Article 41 (6) which states, "*The State shall pursue policies which aim to expand job opportunities for the unemployed and the poor and shall accordingly undertake programs and public works projects."*

The consultations so far conducted by the project proponents and the requirement of the ESMF for public disclosure and consultations with affected parties fulfills the requirements of the constitutional provision of Article 43 (2) that states *"Nationals have the right to participate in national development and, in particular, to be consulted with respect to polices and projects affecting their community."* Article 92 refers to the state's responsibility to design and implement programs and projects that do not damage the environment and establishes the joint responsibility of the government and citizens to protect the environment.

AF Principle 4: Human Rights**.** Projects/programmes supported by the Fund shall respect and where applicable promote international human rights.

The African Charter on Human and People's Rights to which Ethiopia is a party endorses the AF principles on Human Rights. Article 15 states "*Every individual shall have the right to work under equitable and satisfactory conditions, and shall receive equal pay for equal work". Every citizen shall have the right to equal access to the public service of his country. Every individual shall have the right of access to public property and services in strict equality of all persons before the law." The Charter recognises right to work (Article 15), the right to health (Article 16), and the right to education (Article 17).*

In line with these provisions the constitution of Ethiopia states also *," Government shall at all times promote the participation ofthe People in the formulation of national development policies and programs; it shall also have the duty to support the initiatives of the People in their development endeavors. Government shall ensure the participation of women in equality with men in all economic and social development endeavors. Government shall*

endeavor to protect and promote the health, welfare and living standards of the working population of the country. To the extent the country's resources permit, policies shall aim to provide all Ethiopians access to public health and education, clean water, housing, food and social Security."

There is no deficiency in the written principles what will matter is the implementation of these well intentioned principles.

Project affected communities need to be informed of their constitutional rights that they have in the process of planning and implementing the project. They should also be informed of the grievance submission procedures in case of violation of human rights.

AF Principle 6: Core Labour Rights.:Ethiopia's Labor Proclamation (Proclamation No. 377/2003) protects the rights of contract employees and contains similar provisions with that of **AF Principle 6.**.The proclamation's provisions such asthe obligations of employers to respect human dignity of the employees,to take measures for occupational safety and health measures and has clear provisions that stipulate the obligations of the employee and the employer. It is unlawful to discriminate against female workers in matters of remuneration on the grounds of their sex; discriminate between workers on the basis of nationality, sex, religion, political outlook or any other condition. Project implementers need to ensure that these national laws and AF performance standard are implemented at all project sites. While the PS2 recommends not to employ children under 18 years, the proclamation "prohibits employing persons under 14 years of age." In cases where there are misalignment between the national and international requirements it is advisable to respect the stringer provisions.

AF Principle 2: Access and Equity. Projects/programmes supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights.

AF Principle 3: Marginalized and Vulnerable Groups. Projects/programmes supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS.

AF Principle 5: Gender Equity and Women's Empowerment. Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men 1) are able to participate fully and equitably; 2) receive comparable social and economic benefits; and 3) do not suffer disproportionate adverse effects during the development process

AF Principle 7: Indigenous Peoples. The Fund shall not support projects/programmes that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples.

There is no specificnational legislation on this aspect as the Ethiopian population is indigenous. In the Ethiopian context this may not be relevant but the provisions are relevant to any rural community in the selected project areas.
The provisions will be addressed through the appropriate implementation of this ESMF.

AF Principle 8: Involuntary Resettlement. Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.

Ethiopia's Proclamation to provide for the expropriation of land holdings for the public purposes and payment of compensation (Proclamation No. 455/2005),and the Rural land administration and use proclamation (Proclamation 456/2005) cover provisions contained in AF PS8.

Proclamation 456/2005 includes provisions that are in line with AFprinciple 8:

- *"Holder of rural land who is evicted for purpose of public use shall be given compensation proportional to the development he, has made on the land and the property acquired, or shall be given substitute land thereon.*
- *Rural lands that have gullies shall be made to rehabilitate by private and neighboring holders and, as appropriate, by the local community, using biological and physical works."*

The Expropriation of Land Holdings for Public Purposes and Payment of Compensation Proclamation No.455/2005" states that *"A woreda or an urban administration shall, upon payment in advance of compensation in accordance with this Proclamation, have the power to expropriate rural or urban landholdings for public purpose where it believes that it should be used for a better development project to be carried out by public entities, private investors, cooperative societies or other organs, or where' such expropriation has been decided by the appropriate higher regional or federal government organ for the same purpose."*

The law specifies procedures of expropriation, compensation payment, displacement of land holders and grievance and appeal.

AF Principle 9: Protection of Natural Habitats. The Fund shall not support projects/programmes that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.

AF Principle 10: Conservation of Biological Diversity. Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any

significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species.

Proclamation No. 381/2004, Institute of Biodiversity Conservation and Research Establishment Proclamation delegates the Institute of Biodiversity Conservation. " *to ensure the conservation of the country's biodiversity using ex-situ and in-situ conservation methods;"*

Proclamation No. 482/2006 Access to Genetic Resources and Community Knowledge, and
Community Rights Proclamation's objective is *"to ensure that the country and its communities obtain fair and equitable share from the benefits arising out of the use of genetic resources so as to promote the conservation and sustainable utilization of the country's biodiversity resources;"* Subsequent provisions focus on access rights to genetic resources.

AF Principle 11: Climate Change. Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.

AF Principle 12: Pollution Prevention and Resource Efficiency. Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.

Ethiopia's Pollution Control Proclamation and standards (Proclamation no. 300/2002). The proclamation starts out by stating that" *some social and economic development endeavors may inflict environmental harm that could make the endeavors counterproductive."* And further states *"it is appropriate to eliminate, or where not possible, to mitigate pollution as undesirable consequence of social and economic development activities."* The proclamation has standards and penalties for waste management and disposal and it can beconcluded that the provisions of the proclamation align well with the AF performance standard.

Principle 13: Public Health. Projects/programs supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.

The Public Health Proclamation (Proclamation No. 200/2000 is now replaced by Proclamation No. 661/2009) and the Food, Medicine and Health Care Administration and Control Proclamation (Proclamation No. 661/2009)
Proclamation No. 661/2009 contains important provisions that are relevant to the project and these include:

- *It is prohibited to give water supply service from springs, wells or through pipes unless its quality is verified by the Health Authority*
- *Any employer shall ensure the availability of occupational health services to his employees.*

- *The use of any machinery or instrument which generates excessive noise is prohibited. Any person who uses such machinery or instrument shall install noise reducing apparatus or -instrument*
- *No person shall dispose solid, liquid or any other waste in a manner which contaminates the environment or affects the health of the society.*

AF Principle 14: Physical and Cultural Heritage. Projects/programs supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programs should also not permanently interfere with existing access and use of such physical and cultural resources.

Ethiopia's Research and Conservation of Cultural Heritage Proclamation (Proclamation No. 209/2000) established the Authority for 'Research and Conservation of Cultural Heritage and is mandated *to protects and supervise Cultural Heritage; collects information on Cultural Heritage. define the nature and classify the standards of same; give the necessary education and advice on the content, benefit and preservation of Cultural Heritage.*
The proclamation stipulates *"no person may, without a permit issued by the Authority, carry out building or road construction, excavations of .any type or any operation that may cause ground disturbance in an area declared reserved."*

Principle 15: Lands and Soil Conservation. Projects/programs supported by the Fund shall be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services

5. Project Description and Project Components

Component 1: Climate smart resilient system and project design

This component of the project aims to address both these issues through the use of integrated climate smart planning, with multi-sectoral approaches, which are grounded in local community development plans and views. The project also adopts the use of community development officers ('community animators') to embed the project within the local community, i.e. within each Kebele. To advance this, a series of activities are proposed that build the integrated planning approach.

Outcome1: Climate smart development plans are designed and implemented at the local level

Output 1.1. Awareness of IEs enhanced at all levels on climate smart local development plan for effective implantation

The project involves a greater degree of collaboration than typical projects, thus it is important to start the project with an orientation session to advance the project objectives. It is also important for the project to have a common set of information that is shared across the project areas, to enhance consistency and efficiency. The project will therefore start with a series of orientation activities.

Activity 1.1.1. National level meeting between CRGE facility and PMU, the four implementing Ministries, the Regions and the technical team;

Activity 1.1.2. Meeting /consultation with PMU, the Regions, Woreda and Kebele representatives, and local Ministry representatives;

Activity 1.1.3. National desk based study:

Output 1.2: Climate smart development plan designed

The activities under this output therefore will compile the information and look for opportunities for integrated climate planning and seek to make existing Woreda plans climate smart. Working with each of the 7 woredas of the project, the following activities will be undertaken:

Activity 1.2.1. Undertake review of existing local development plans in view of climate smart development;

Activity 1.2.2. Develop locally appropriate climate climate mainstreaming framework (tools, methodologies and guideline);

Activity 1.2.3 Conduct consultation with the Regions, woredas and communities on climate smart planning;

Output 1.3: Climate resilient water planning

The project will develop a climate resilient planning for water management. This will adopt an integrated climate-smart water planning approach, which included some local analysis in each of the Kebeles (i.e. for each of the 14 project sites). The study would include the following activities:

Activity 1.3.1. Collect regional and local watershed information for the relevant project areas. This will include. hydro- meteorological data, groundwater information (using the hydrological and feasibility study to provide an indicative analysis of water availability (supply-side) ;

Activity 1.3.2. Estimate current water demand (household level and for other users) and future for the relevant project area, considering existing plans. A gender based analysis of estimates will be crucial given women's responsibility for collecting water;

Activity 1.3.3. Undertake a scoping assessment on the potential influence of climate change on future water demand;

Activity 1.3.4. Provide an indicative water balance (supply-demand) in each Kebele with consideration of current and future risks.

Activity 1.3.5 Develop an integrated water - agriculture-land-ecosystem and livelihood diversification plans with the communities;

Output 1.4: ***Climate smart agriculture and land – water - forest integration planning***

The project will develop climate resilient planning for integrated agricultural development, with a focus on climate smart agriculture and integrated land-water-ecosystem management. The main activities would include:

Activity 1.4.1 Collate information on agricultural production, management systems and practices in the project areas;

Activity 1.4.2 Undertake survey and analysis of local soil and water conditions and environmental degradation;

Activity 1.4.3 Assess the potential portfolio of options for each relevant adaptation-planning zone, considering elevation, precipitation and soil suitability;

Activity 1.4,4 Develop locally appropriate tools and methodologies to support uptake of climate smart agriculture and watershed rehabilitation.

Output 1.5. ***Climate resilient livelihood planning***

The project will develop livelihood diversification, supporting a transition from highly vulnerable existing livelihoods towards alternatives that are climate resilient (and also low carbon, in line with national CRGE objectives). This will include:

Activity 1.5.1. Collate existing socio economic data for the project area and conduct vulnerability assessment of the community;

Activity 1.5.2. Conduct consultation with the local community to understand the available livelihood options and foster innovative adaptive practices;

Activity 1.5.3 Sensitize the community and discuss current climate variability and future climate change risks to better understand vulnerability;

Activity 1.5.4 Identify appropriate options and develop a comprehensive livelihood diversification plan for the project area.

Component 2: Climate resilient integrated use of water resources

This component is designed to enhance climate smart integrated water management, providing a reliable source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, but doing so in a way that introduces green technologies and ensures long-term climate resilience, i.e. consistent with Ethiopia's national CRGE strategy which seeks to build resilience and at the same time reduce GHG emissions.

Outcome 2: Food security assured, school enrollment increased, health improved Agricultural Productivity and potable water supply services and improved, and adaptive capacity of the local community increased

In all of the Woredas selected, the majority of the population accesses drinking water from ponds and rivers, and thus almost all households use water without any treatment. All of these Woredas also experience periodic droughts, and water supply is a critical issue during these times. This activity therefore seeks to enhance potable water from supply sources that are resilient to current climate shocks and future climate change trends. The proposal is for a climate resilient and green potable well to be delivered in each of the 14 Kebeles. The activities include:

Output 2.1. ***Potable water supply increased in the project areas***

Activity 2.1.1. Conduct hydrogeological and geophysical studies and provide support in terms of appropriate satellite imagery analysis in the project areas;

Activity 2.1.2. Prepare design and tender document with hydrogeological assessment, design all works and yield tests, drawings, Bill of Quantities, Specifications, Conditions of Contract and all other required documentation prepared;

Activity 2.1.3. Drill shallow wells

Activity 2.1.4. Construct elevate water reservoir and water point ;

Activity 2.1.5. Complete set of solar powered submersible water pump systems, Solar PVs, including all electro-mechanical works procured; and

Activity 2.1.6. Install pump and electro-mechanical fixtures;

Output 2.2: Irrigation for agriculture designed and developed

Following from 1.2 above, all of the target Woredas selected suffer from periodic droughts, and this affects crop production, livestock and food security, and often results in the sale of key assets (notably livestock), which reduces longer-term income. There is therefore a need for a multi-purpose approach for providing water for irrigation, mixed use and pastoral areas. This activity therefore seeks to provide water to enhance resilience to climate shocks. The proposal is for a well to be delivered in each of the 14 Kebeles. The activities involved include:

Activity 2.2.1. Prepare detailed design and tender document including, construction of hand-dug wells, shallow wells, check dams (sand dams), canals and drip-irrigation irrigation systems;

Activity 2.2.2. Construct hand dug wells or check dams (water harvesting for rivers);

Activity 2.2.3. Install hand pumps;

Activity 2.2.4. Upgrade traditional irrigation schemes for hand dug wells;

Activity 2.2.5. Complete sets of solar powered surface water pump systems, Solar PVs, including all electro-mechanical works;

Activity 2.2.6. Construct sand dams ;

Activity 2.2.7 Construct Irrigation canals for drip irrigation systems;

Activity 2.2.8 Install pump and electro-mechanical fixtures;

Activity 2.2.9. Install drip irrigation systems procured.

Component 3: Climate smart agriculture – land – water - forest integration

Outcome 3.Watersheds' rehabilitated through conservation measures and climate smart agriculture leading to improved ecosystem

This component focuses on climate smart agriculture, as a low regret adaptation option that helps reduce current climate vulnerability and builds resilience to future climate change. A key innovation, however, is the introduction of CSA from the perspective of land-water-forest integrated solutions. This component thus focuses on managing the watershed through physical and biological interventions such as bunds, trenches, terraces and afforestation and reforestation practices. By doing so, the component supports the sustainability of agricultural practices (soil and water), controls runoff, reduces environmental degradation, and creates an enabling environment for soil, nutrient recycling, organic matter and water retention in the target Woredas. It also targets afforestation/reforestation, aligning to the national CRGE strategy and the priority in this area. This includes planting diversified native trees in marginal lands, establishing shelter belts (native tree species, etc.), patches of forests (in unproductive lands), rehabilitation of degraded land and prevention of sheet erosion, micro-basin, trenches and inter farm ponds.

Output 3.1. ***Climate smart agriculture implemented at farm level***

All of the Woredas in the proposed project have reported high agriculture losses in recent years, as a result of climate variability and shocks, and in many cases this has necessitated humanitarian responses due to food insecurity. Addressing the risks of current and future climate change to agriculture is therefore critical in enhancing resilience. A key focus of the CRGE to do this is through the application of soil and water conservation – a major component of climate smart agriculture. There are a set of options at the farm level that can improve soil water infiltration and holding capacity, as well as nutrient supply and soil biodiversity. This reduces current risks from rainfall variability and soil erosion, increases soil organic matter and soil fertility, increasing productivity, and reduces greenhouse gas emissions. The activities include:

Activity 3.1.1. Construct physical moisture and soil conservation structures;

Activity 3.1.2. Building physical moisture and soil conservation structures;

Activity 3.1.2. Build biological conservation measures (e.g. grass strips, hedges, planting of physical measures);

Activity 3.1.3. Treat farmland gully;

Activity 3.1.4. Introduce and enhance agroforestry scattered trees on farmlands (Faihderbia, Croton, etc.) and introduce homestead multi-storey agro-forestry and soil conservation measures;

Activity 3.1.5. Establish wind breaks/shelter belts and farm boundaries.

Output 3.2. Integrated watershed management

While tackling climate risks at the farm level is important, it is also important to consider the adaptation response from a community and watershed level. This recognizes that implementing options at the farm level alone will often not be sufficient to build the necessary resilience. Indeed, it is often the case that degradation of watersheds and deforestation actually increases the risks at farm level and thus an integrated approach that seeks to implement climate smart activities at the community level is needed. This activity implements such measures, including:

Activity 3.2.1. Undertake upper watershed treated with soil and water conservation measures;

Activity 3.2.2. Implement physical and biological soil and water conservation (SWC) measures;

Activity 3.2.3. Implement rangeland management practices in pastoral watersheds area ;

Activity 3.2.4. Undertake area closures for enhanced natural regeneration;

Activity 3.2.5. Undertake upper watershed gully treatment ed;

Activity 3.2.6. Establish new or upgrade existing, nurseries seed, produce seedlings, and plant;

Activity 3.2.7. Afforest/reforest degrade forestland;

Activity 3.2.8. Purchase and produce seedling tree and grass seeds;

Activity 3.2.9. Establish community based systems for grazing land, efficient feed conservation management systems and practicing stall-feeding.

Component 4: Resilient livelihood diversification

Outcome 4: Livelihoods of the local communities is diversified and improved market access ensured

As identified in the risk profiles, all of the target Woredas are vulnerable to climate shocks, and in most cases, three-quarters of households have experienced major impacts over the past five years. This is compounded by the low resilience of households, in terms of their ability to withstand and subsequently bounce back after these events. These pressures are likely to increase under the changing climate and this component seeks to help communities that have high climate vulnerability to diversify their current production methods and indeed their overall livelihoods. A key innovation is that this diversification is targeted towards activities that are consistent with climate resilient (but also green economy) activities, so they align with the priorities identified in the national CRGE strategy, and link bottom-up community diversification with national policy. In looking at these diversification strategies, a

key innovation will be to take a value chain approach, to ensure investment in production is complemented with efforts to ensure access to markets etc.

Output 4.1: ***Climate resilient livelihood diversification***

The CRGE strategy identified the high climate vulnerability (droughts) and high GHG emissions from the existing reliance on cattle, and recommended a strategy towards poultry as both lower carbon and more resilient. The CRGE agriculture strategy also identified the potential for greater resilience through diversification into other agricultural products (e.g. land fruits and vegetables), as well as goats and sheep, for strengthening resilience. The role of beekeeping was also identified in both strategies as a critical activity for ecosystem based livelihoods: in this case around forests. These components are included for all Kebeles, though the mix of diversification strategies will be chosen based on the study feasibility results. The focus is not on grants but on the facilitation of alternative livelihood activities, and increasing access to existing local micro-finance institutions. Activities include:

Activity 4.1.1. Purchase and adopt lowland fruits t and promote vegetable productions;

Activity 4.1.2 Provide Relevant fruit management tools;

Activity 4.1.3. Facilitate forage seed supplies;

Activity 4.1.4. Promote small chicken-egg hatcheries.

Activity 4.1.5. Facilitate access to credit to support purchase and dissemination of hatchery units, modern farm beehives, seed of bee flora, veil, glove, smoker, boots, brush, chisel and sprayer for beekeepers

Activity 4.1.6. Introduce improve varieties of sheep and goat and along with s distribution of imported (more resilient) sheep and goat breeds;

Activity 4.1.7. Conduct market assessment and value chain analysis along with facilitating better access to market information;

Activity 4.1.8. Facilitate collective and individual access to financial and support services, with attention to gender equality,

Activity 4.1.9. Facilitating better access to market information and develop interventions to address market failures

Component 5: Capacity building, monitoring, evaluation and learning.

Outcome 5: Knowledge transferred and lessons learnt captured at all levels through results based monitoring and evaluation.

This component will focus on capacity building, and implementing the monitoring and evaluation components. A particularly innovative additional element will be to add an explicit learning component to the project. Finally, it will bring together the lessons from the overall project and communicate these.

Output 5.1. ***Building capacity and knowledge transfer***

Activity 5.1.1. Provide training on operation and maintenance of Solar PVs and hand pumps at the community and Woreda level;

Activity 5.1.2 Provide training for local planners and community representatives on the integrated community plan designed;

Activity 5.1.3 Conduct training at the community and Woreda level on implementing the climate smart development plan designed;

Activity 5.1.4 Conduct training at the federal and regional level on data extraction and re-programming of ground water monitoring devices;

Activity 5.1.5 Create skills at the community level on the projects focusing on livelihood diversification initiatives;

Activity 5.1.6 create awareness on the results framework of the adaptation programme, the CRGE facility M&E system as well as safeguards frame work, and operations manual, and

Activity 5.1.7 Enhance institutional capacity at various levels in terms of logistics and office furniture and equipment.

Output 5.2. ***Monitoring, evaluation and learning***

Activity 5.2.1. Develop baselines for the project;

Activity 5.2.2. Document regular progress reports and results

Activity 5.2.3. Undertake annual Performance Assessment or review workshops;

Activity 5.2.4. Organize Joint Monitoring Missions;

Activity 5.2.5. Conduct Mid-term and End of Project Evaluation and;

Activity 5.2.6. Conducted annual financial Audits.

Activity 5.2.7. Analysis of meteorological station data and satellite data for the period of the study for the relevant sites to build up climate risk parameters and trends;

Activity 5.2.8. Ground water monitoring devices

Activity 5.2.9. Analysis of the outcomes of the climate smart agriculture pilots

Activity 5.2.10. Performance of the resilient livelihoods against annual climate variability.

Output 5.3. ***Communication of results and lessons***

Activity 5.3.1. Develop a communication strategy and knowledge management strategy.

Activity 5.3.2. Periodic update of the CRGE Registry website on project status

Activity 5.3.3. Conduct awareness and education campaigns using a variety of communication tools (participatory videos, learning platforms, posters, media, training and workshops/seminars, business roundtables);

Activity 5.3.4. Organize workshops and learning events (mid term and final)

Activity 5.3.5. Synthesize, prepare, document and disseminate communication and knowledge materials, examples will include case studies and policy briefs

6. Baseline of the Project Weredas and Kebeles

The baseline information with regards to the Regional States, Werads and project kebeles are compiled in a separate document. However brief information about the project Weredas is provided in Annex 1.

7. Project Implementation Arrangements

The implementation of the ESMF will utilize the envisaged project implementation arrangements the structure of which is indicated below.

The federal line ministries have delegation of authority to conduct ESIA for projects under their jurisdiction as per the delegation of authority provided to them by the former Environment Protection Authority (EPA), which is still valid under the new MoEFCC. A sample Delegation of Authority (DoA) provided by the Environment Protection Authority to the Ministry of Water, Irrigation and Electricity is attached (Annex 2). Although this arrangement has raised some controversy the implementation of this ESMF will abide by the provisions of the DoA.

Under the CRGE, implementing entities are Federal Government (FIE's, i.e. line ministries) and Regional Governments (RIEs, i.e. sector bureaus) while executing entities do the bulk of implementation.

For this proposal, the implementing entity will be the Ministry of Finance and Economic Cooperation (MOFEC).

There are four Ministries of the GoE that will be executing entities, namely the Ministry of Agriculture and Natural Resources (MOANR), the Ministry of Livestock and Fishery

(MOLF), the Ministry of Environment, Forest and Climate Change (MEFCC)[1], and the Ministry of Water, Irrigation and Electricity (MOWIE). These ministries have committed to work together under the overall coordination and leadership from the CRGE Facility under the Ministry of Finance and Economic Cooperation (MOFEC).

The MOANR, MOLF, MOWIE and MEFCC will provide project management support for the project. In addition to carrying out the responsibilities, through its co-financing commitments, the Ministries will support operations and management, and provide staff capacity and time, and provide infrastructure and facilities for project implementation. Each of line ministries has local offices at Woreda level and thus these local offices will undertake the actual implementation.

While the project is based on multisector and integrated approaches, the Ministries will work on a centrally coordinated basis with clear and specific responsibilities delegated to individual Ministries. Generally, all agriculture and natural resource related outputs will be delivered by MOANR, water and energy related outputs by MOWIE, forest and crosscutting climate change outputs by MEFCC, and livestock by MOLF.

All work will be jointly planned and implemented under the coordination of the Woreda Administration Office.

Management arrangements

The CRGE Facility will be responsible for overall coordination of the project at Federal level. A project **Coordinator** will be assigned to coordinate project planning and implementation and reporting to the M&E and Safeguards unit established within the Facility.

The project will be overseen by a project steering committee. This will be the CRGE management committee. A small project management unit (PMU) will be set up and located in MOFEC in the CRGE facility. This will comprise of a project co-ordinator, a monitoring and evaluation officer and a financial and administrative officer.

The PMU will be responsible for the overall coordination and leadership, including preparation of annual/biannual work plans, and their implementation, monitoring and supervision.

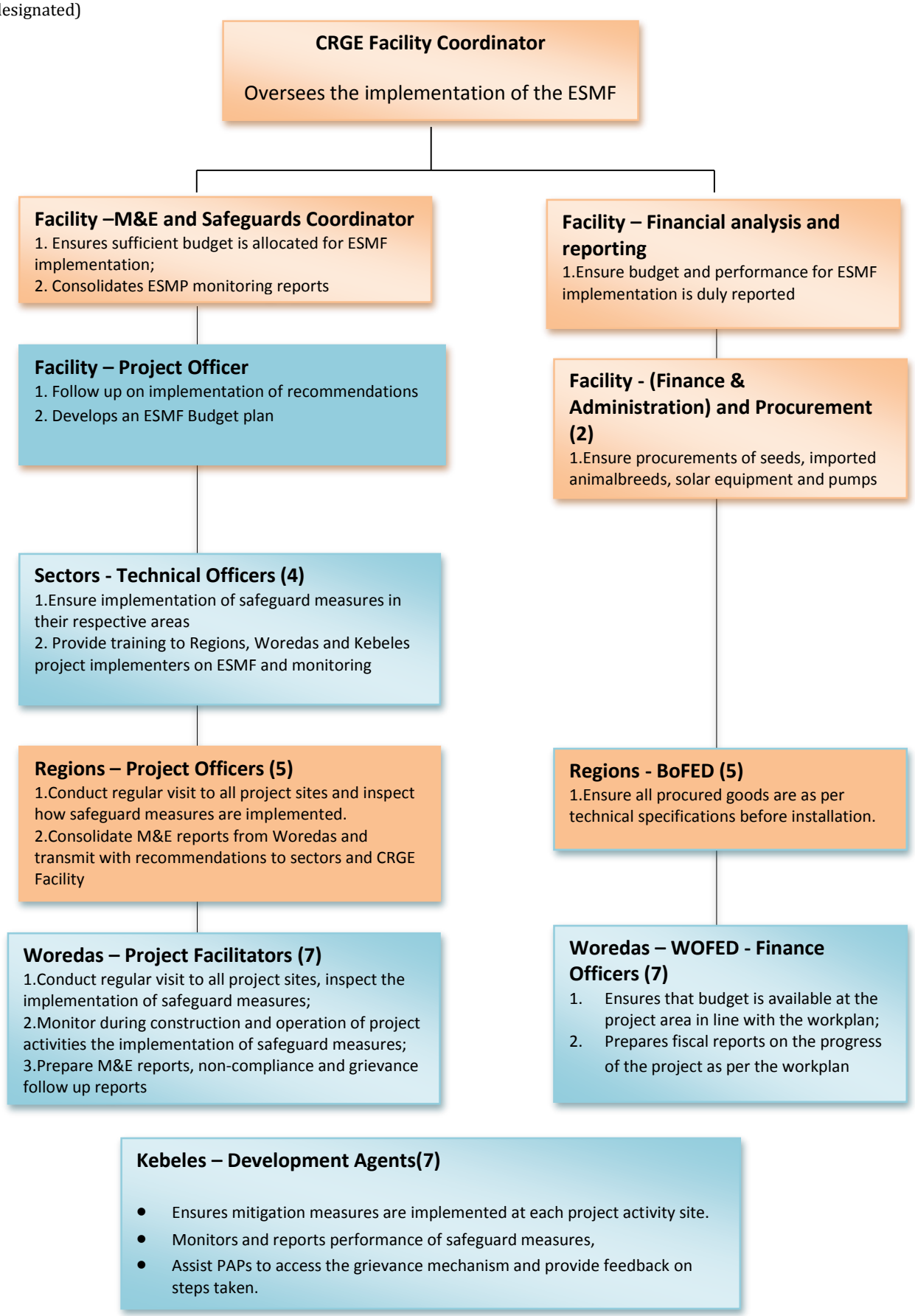
The project will be implemented by MOANR, MOLF, MOWIE and MEFCC. Each of line ministries has local offices at Woreda level and thus these local offices will undertake the actual implementation. The project will be implemented through the regular agricultural extension, DRM, livestock, natural resource and other government structure involving farmers and farmer's organisations, thus helping to create a sense of ownership at all levels.

[1] MEFCC was previously the Ministry of Environment and Forestry, which was created as a result of the former Environment Protection Authority (EPA) becoming a full Ministry in 2013.

A Community Development Agent (CDA) will be appointed for each of the 14 Kebeles. These agents will be responsible for advisory support and extensions services to local beneficiaries (mainly farmers). CDAs will be responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities. They will also work within each Kebele with the village committees to engage in project implementation, their responsibilities including but not being limited to beneficiary selection, mobilising community contribution and representing the community in project management.

Local stakeholders and community members will have a key role to play in the implementation and monitoring of the project. Consultations with all stakeholders will be organised to ensure there is clear understanding of the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines. Community representation and engagement will be coordinated by Kebele (village) Committees.The Woredas M&E Experts will also assume the role of safeguards officers and all Kebele Development Agents will be trained on how to monitor and report the implementation of safeguard measures.

ESMF implementation Arrangement(Blue boxes indicate staff to be employed and brown indicates staff to be designated)



8. Key Issues and Proposed Actions within the ESMF

8.1. Eligibility Criteria

It is essential to ensure the activities undertaken in the context of Ethiopia's "*Climate Smart Integrated Rural Development*" project are in line with the legal requirements of the country and the AF's policies. In the previous sections the general alignment of the Ethiopian laws with the AFenvironment and social policy has been demonstrated.

In general the following are ineligible activities under the proposed project, in line with national and internationally accepted principles:

a) Not significantly convert or degrade "natural habitat" ;
b) Not implement activities in "critical habitat" ;
c) Not implement activities in legally protected or internationally recognized areas unless:
d) Not develop a project on land that is traditionally owned or used by rural communities unless the risks are thoroughly assessed, rural communities are informed of their rights, rural communities continue to have access to resources if possible, appropriate compensation is offered, and rural communities are offered a fair and equitable sharing of project benefits.
e) Not remove, significantly alter, or damage critical cultural heritage (such as internationally recognized or legally protected heritage sites), except in exceptional circumstances and in collaboration with affected communities.
f) Not discriminate but instead hire, compensate, manage and lay off employees based on the principle of equal opportunity and fair treatment.
g) Not restrict workers from joining or forming workers' organizations or bargaining collectively, nor retaliate against workers who organize.
h) Not employ children (under 18) in any manner that is economically exploitative or harmful to the child's health, education or social development.
i) Not employ forced labor or trafficked persons

8.2. Grievance Mechanism

The AF Environment and Social Policy states that *the implementing entities shall identify a grievance mechanism that provides people affected by projects/programmes supported by the Fund with an accessible, transparent, fair and effective process for receiving and addressing their complaints about environmental or social harms caused by any such project/programme. The mechanism can be pre-existing, national, local, or institution- or project-specific*..[2]

The Ethiopian Institution of the Ombudsman (EIO) is a federal entity accountable to the Federal Parliament and responsible for ensuring that the constitutional rights of citizens are not violated by executive organs. It receives and investigates complaints in respect of maladministration; conducts supervision to ensure the executive carries out its functions according to the law; and seeks remedies in case of maladministration.

The Regional Public Grievance Hearing Offices (PGHOs) are regional entities accountable to their respective regional Presidents. They are responsible for receiving appeals, complaints and grievances related to public services and good governance; investigating these; and making recommendations and decisions to redress them. Most regions have established their PGHOs and

[2] Adaptation Fund, Board 2016.Environnement and Social Policy (Revised in March 2016)

have branches at zonal, woreda and kebele levels which are accountable to their respective chief administrator. At the kebele level, the Kebele Manager serves as the focal point.

A complainant has the option to lodge his/her complaint to the nearby EIO branch or the respective PGHO in person, through his/her representative, orally, in writing, by fax, telephone or in any other manner. Complaints are examined; investigated and remedial actions are taken to settle them. If not satisfied with the decision of the lower level of the GRM system, the complainant has the right to escalate his/her case to the next higher level of administration. In addition, some regions have mobile grievance handling teams at woreda level to address grievances by clustering kebeles; some have good governance command posts to handle cases that have not been settled by the Kebele Manager and woreda PGHOs. PBS 3 is supporting GRM system strengthening including the opening of new EIO branches**.**

Local communities and other interested stakeholders may raise a grievance/complaint at all times to the Kebele Administration, Woreda Administration, Regional State Administration. Affected local communities should be informed about the ESMF provisions, including its grievance mechanism. Contact information of the Kebele, Woreda and Regional State **M&E &safeguard officer** should be made publicly available.

As a first stage, grievances should be made to the Kebele designated **M&E &safeguard officer**, who should respond to grievances in writing within 15 calendar days of receipt. Claims should be properly filed at the office of the Woreda and Kebele Administrations, and a copy of the grievance should be provided to the Project Management Unit at MOFEC. If the claimant is not satisfied with the response, the grievance may be submitted to Project Management Unit at MOFEC.

Ethiopia's "*Cimate Smart Integrated Rural Development"* project and its sub projects do not require involuntary resettlement and large scale expropriation of land. However some sub projects may require land for locating water wells, irrigation plots, metrological stations, storage facilities that may encroach on private properties. The Ethiopian government laws and AFprinciplescontain appropriate provisions with regards to compensation. Proclamation 456/2005 includes provisions that are in line with AFPrinciples 2,8 and 9, and states, *"Holder of rural land who is evicted for purpose of public use shall be given compensation proportional to the development he, has made on the land and the property acquired, or shall be given substitute land thereon.'*

Proclamation No. 455/2005, article 3(1), states *"A Woreda or an Urban Administration shall, upon payment in advance of compensation in accordance with this proclamation, have the power to expropriate rural or urban land holdings for public purpose where it believes that it should be used for a better development project to be carried out by public entities, private investors, cooperative societies or other organs or where such expropriation has been decided by the appropriate higher Regional or Federal government organ for the same purpose ".*

The purpose of the complaints procedure is to ensure all complaints from local communities are dealt with appropriately, with corrective actions being implemented and the complainant being informed of the outcome. Both verbal and written complaints will be entered on the Complaints Log and the Complaints Action Form.
The complaints log provides a record to show that actions are tracked and carried out. It records:

- Date the complaint was reported;
- Person responsible for the complaint;
- Information on proposed corrective action sent to complainant;
- The date the complaint was closed out; and
- Date response sent to complainant

Possible Grievance Redress procedures at the different levels of administration based on the study done for the National REDD+ Secretariat[3].

Level	Responsible Institution	Procedure
Federal Level	MOFEC + Project steering committee	MoEFCC need to give response within one month
	Federal Ombudsman's Office	The Federal Ombudsman's can also give advice for unresolved issues before the case is submitted to the court
	Federal Court	Applicants may also pursue their cases through the court system, if they are not satisfied with the Grievance Redress System.
Regional Level	Regional Environment Office and PCU	If Applicants are not satisfied or referred to the regional environment office and the regional office should give response within 15 days,
	Regional Ombudsman's Office	Applicants may also get advice from the Regional Ombudsman's office
	Regional Court	Applicants may appeal to the court if it is not resolved at environment office
Woreda Level	Woreda Environment office	Applicants may raise their grievance to the Woreda environment office and response should be given within 10 days. If the Applicant are not satisfied by the response they can take the issue to the Regional PCU or Woreda formal court
	Woreda Ombudsman's Office	Applicants can also submit their apple to the Ombudsman's for advice
	Woreda Court	Applicants can submit their appeal to the formal court and continue with the formal process
Kebele* Level	Kebele Shengo	Local communities and other interested stakeholders (Applicants) may raise a grievance/complaint to the Kebele manager for grievance caused by the project and need to get a response within 10 days

The following table provides very general guidance in consideration of compensation as related to the project at hand and the determination of compensation entitlements will have to worked out for specific sub-projects falling under the jurisdiction of government implementing agencies and types of property lost as a result of project implementation.

Compensation Entitlement Matrix

Loss Category	Entitlement Unit	Description of Entitlement
Loss of Trees and Crop	Landowner	▪ At least three months advance notice to be provided to farmers to harvest crop. In absence of advance notice, cash compensation based on annual value of the produce (crop compensation). ▪ Cash compensation based on annual value of the produce, in case of fruit trees and coppicing trees (for trees compensation
Loss of agriculture land	Landowner	▪ Cash compensation at replacement cost ▪ Any transfer costs, registration fees or charges ▪ Compensation for crops and trees if any ▪ Subsistence allowance equivalent to one year of minimum agriculture wages
Loss of property	households	▪ Compensation at replacement cost

[3] MINISTRY OF ENVIRONMENT AND FOREST (MEF) OROMIA FOREST AND WILDLIFE ENTERPRISE (OFWE) 2015. OROMIA FORESTED LANDSCAPE PROGRAM (OFLP),RESETTLEMENT POLICY FRAMEWORK (RPF)

8.3. Consultations and Public disclosure

The AFEnvironment and Social Policy requires that*"Implementing entities shall identify stakeholders and involve them as early as possible in planning any project/programme supported by the Fund. The results of the environmental and social screening and a draft environmental and social assessment, including any proposed management plan, shall be made available for public consultations that are timely, effective, inclusive, and held free of coercion and in an appropriate way for communities that are directly affected by the proposed project/programme. The secretariat will publicly disclose the final environmental and social assessment through the Fund's website as soon as it is received. The implementing entity is responsible for disclosing the final environmental and social assessment to project-affected people and other stakeholders. Project/programme performance reports including the status on implementation of environmental and social measures shall be publicly disclosed. Any significant proposed changes in the project/programme during implementation shall be made available for effective and timely public consultation with directly affected communities."*

This will allow the public and other stakeholders to comment on the possible environmental and social impacts of the project.

The IFC Guidelines on best practice in public consultation and disclosure outline issues to consider whilst undertaking public consultation and disclosure, as follows:

- Written and oral communications in local languages and readily understandable formats;
- Accessibility by relevant stakeholders to both written information and to the consultation process;
- Use of oral or visual methods to explain information to non-literate people;
- Respect for local traditions or discussion, reflection and decision-making;
- Care in assuring that groups being consulted are representative, with adequate representation of women, vulnerable groups, and ethnic or religious minorities, and separate meetings for various groups, where necessary; and
- Clear mechanisms to respond to people's concerns, suggestions and grievances.

9. Overall Social and Environmental Benefits

9.1. Social Benefits

The project has an explicit **learning component** that intends to build the capacity of the local communities and will provide opportunities for scaling up of innovative approaches and interventions in off project sites. This aspect will generate substantial social benefits in terms of enhancing local planning capacity , community involvement in decision making and will benefit wider communities later when innovative approaches are scaled up.

The overarching strategy of the project is to manage the risks from recurring droughts, floods, landslides and erosion – both from current risks and under future climate change - through an integrated water, agriculture and natural resource management nexus approach. enhance climate smart integrated water management, providing a reliable source of clean water for potable supply (reducing current health impacts) and reducing the climate risks from rain-fed subsistence agriculture, managing the watershed through

physical and biological interventions such as bunds, trenches, terraces and afforestation and reforestation practices.

This project, through the above interventions, will provide employment opportunities to local populations. It is anticipated that the project will provide direct employment during the construction phase and at operational stage of subprojects .Water supply systems under this program will ensure that the general public in the targeted areas have access to clean water supply, a pre-requisite for health and sanitation. In promoting irrigation practice, the project will offer opportunities for high value crop productions that will increase the income of rural farmers resulting in enhancing their quality of life.

This is complemented with a low carbon, climate resilient livelihoods diversification interventions. The project is to be implemented in climate sensitive and vulnerable areas of Ethiopia. The value chain approach that ensures investment in production is complemented with efforts to ensure access to markets, will greatly benefit local communities in securing sustained income.

9.2. Environmental Benefits

The planned conservation structures by the project include stone or earth terraces, bunds, check dams and contour terraces, dams, grassed water ways, planting pits.These structures increase the time of concentration of runoff, thereby allowing more of it to infiltrate into the soil; divide a long slope into several short ones and thereby reducing amount and velocity of surface runoff; reduce the velocity of the surface runoff; protect against damage due to excessive runoff. Ultimately springs and water wells will yield more water and soil erosion will be avoided. In general the structures will bring about environmental and social benefits to the communities of the kebeles. Conservation structures are basically environment enhancement interventions.

In order to accrue the environmental and social benefits of the physical structures, the structures should be designed and constructed following technical guidelines and specifications provided in the 2005 Ministry of Agriculture and Rural Development's "Community Based Participatory Watershed Development Guidelines Part 1 and 2."

Better productivity on less tilled land due to improved seeds will also contribute to soil conservation. Conservation structures are basically environment enhancing projects and agro-forestry provides sheds to plants, conserve water and protects from soil erosion.

9.3. Potential Environmental and Social Benefits Enhancement Interventions

In order to enhance the benefits of water wells , both hand pump and submersible pumps based systems, proper training to operators and users should be provided. Adequate spare parts for all installations (hand pump, submersible pump, solar power systems,) should be available on site along with appropriate workshops.

Ponds store rain water or diverted water from perennial or intermittent rivers and are usually used for livestock watering. Some communities use pond water for drinking and domestic use. Pond waters are turbid and are often polluted.

Additional structures need to be incorporated in order to make ponds socially acceptable and fulfill environmental requirements. These include installation of hand pumps in wells dug near the ponds and construction livestock troughs away from the ponds. Considerations should also be taken in the design of the ponds for loss of water through evaporation and infiltration based on meteorological and soil characteristics in the area of ponds construction.

Caution should be exercised in order to avoid polluted water from entering ponds usually from washed fertilizer and pesticides from adjacent farm lands.

The former Environmental Protection Authority in its draft EIA guidelines recommends that irrigation fields locations should be carefully selected with a view not to encroach on sensitive or biologically rich ecosystems, sites of cultural/historical significance, settlements of religious or scientific value, areas with flat topography or with high water tables that are at risk from salinisation. It also advises that adequate health care facilities must be provided, on-going user involvement in the development of the project must be encouraged, capacity of irrigation canals to transport sediment loads must be determined, measures must be taken to prevent low irrigation efficiency caused by poor water distribution or a poor rain system management.
Flood control measures should also be implemented in addition to the above measure in order to enhance the social and environmental benefits of irrigation projects.

With regards to plantation forests, use of the document entitled, '*FAO. 2006.Responsible management of planted forests: voluntary guidelines. Planted Forests and Trees WorkingPaper 37/E. Rome (also available at www.fao.org/forestry/site/10368/en)* is recommended.

10. Environmental and Social Impacts Assessment (ESIA)

An environmental and social impact assessment report is a statement about the likely impacts of a proposal and how the identified impacts can be mitigated and managed.

The ESIA stages include:[4]

a) Screening: The Regional State Bureau of Environment Forest and Climate Change will use the Project Screening Form (Annex 2I) to determine whether a full ESIA, limited ESIA, or no ESIA is needed for the proposed project as well as if special studies are required;
The Ethiopian EIA procedural guideline recommends a prescreening consultation to be conducted. A pre-screening is a stage where the proponent and the respective environmental or sectoral agencies establish contact and hold consultation on how best

[4]Adapted and modified from Global Environmental Facility,2015. Environnent and Social Management Framework

to proceed with the environment and social impact assessment. The undertaking of a pre-screening consultation is advisable for it saves time and fosters a mutual understanding about the requirements of the AF and the GoE.

The AF Environmental and Social Policy (Approved in Novemebr 2013; Revised in March 2016) states *"Projects/ programs likely to have significant adverse environmental or social impacts that are for example diverse, widespread, and irreversible should be categorized as Category A. Projects/programs with potential adverse impacts that are less adverse than Category A projects/programs, because for example they are fewer in number, smaller in scale, less widespread, reversible or easily mitigated should be categorized as Category B. Those projects/programs with no adverse environmental or social impacts should be categorized as Category C. Regardless in which category a specific project/program is screened, all environmental and social risks shall be adequately identified and assessed by the implementing entity in an open and transparent manner with appropriate consultation. "*

Initial examination of the project components and activities pending the conduct of the screening exercise*, the project may be categorized as* ***Category B and C****, that is, 'project is expected to have limited adverse social and/or environmental impacts that can be readily addressed through mitigation measures'"*
In case some project components and sub projects are required to pass through the whole EIA process, a generic screening form is attached to this report. (Annex 3)

b) Scoping: The Regional State Bureau of Environment Forest and Climate Change (through a consultant)develops a preliminary examination of the impacts likely to occur as a result of the proposed project, and which should be covered by the ESIA. The scoping phase must include stakeholder engagement to help identify issues. Based on the results of the scoping phase, the Executing Entity will draft the TOR for the full ESIA. Specifically, the Regional State Bureau of Environment Forest and Climate Change will ensure that:
Although the Woredas and the Kebles within each Woreda have been identified, the location and nature of the specific project activities are not known in sufficient detail to conduct a project specific environment and social impact assessment. The ESMF will set the framework that will enable the project planners and implementers to put in place an environment and social management system that will assist them to conduct and manage environment and social impact assessment for specific projects. The draft TOR is disclosed to stakeholders prior to the submission of the TOR to the Ministry of Environment, Forest and Climate Change and approval is received from MOEFCC for the TOR before any work can commence.

c) Implementation of the (full) ESIA: Overall project assessment and any specialist studies, as identified during the Scoping Phase, are conducted. Special studies are guided by the safeguard issues raised during scoping. They deal with the concerns of stakeholders in these areas. For adverse impacts, alternatives are identified to establish the most environmentally sound and benign option(s) for achieving project objectives;

d) Draft Report: The Sector Line Ministries or Regional States submits findings as an ESIA document/report. This discusses mitigation and impact management (measures to

avoid, minimize, or offset adverse impacts), monitoring and reporting. Where appropriate, draft mitigation plans are incorporated into a draft ESMP. The reports must be clear, impartial, publicly available, and address stakeholder concerns;

e) Review and Final Report: It is the responsibility of the MOEFCC to review and approve the final ESIA report to ensure that it complies with the Terms of Reference and stakeholder engagement requirements, and appropriately addresses AF concerns and national laws.

f) Decision-making: An environmental compliance certificate may be issued by MOEFCC .

g) Monitoring, reporting, and enforcement: The PMU at the CRGE Facility will monitor whether the project implementers ensure compliance with the mitigation measures as incorporated in project design and monitored by the indicators of the Project-level ESMP.

11. Potential Adverse Impacts and Mitigation Measures

Project component and activities	Potential environmental/social impacts/risks	Significane of Impacts	Proposed Mitigation Measures
Component 1: Climate smart resilient system and project design **Outcome1: Climate smart development plans are designed and implemented at the local level**			
Output 1.1. **Awareness of IEs enhanced at all levels on climate smart local development plan for effective implantation**			
Activity 1.1.1. National level meeting between CRGE facility and PMU, the four implementing Ministries, the Regions and the technical team; **Activity 1.1.2**. Meeting /consultation with PMU, the Regions, Woreda and Kebele representatives, and local Ministry representatives; **Activity 1.1.3**. National desk based study:	No adverse impacts expected		
Output 1.2: Climate smart agricultural development plan designed			
Activity 1.2.1. Undertake review of existing local development plans in view of climate compatible development; **Activity 1.2.2.** Develop locally appropriate climate compatible development mainstreaming framework (tools, methodologies and guideline); **Activity 1.2.3** Conduct consultation with	Inappropriate plans , site and technology selection may negatively impact communities and the environment: • Plans that require displacement of people; • Water facilities located near burial places resulting in health	**Probability of impact occurrence** The probability of occurrence is low due to the planning process adopted which involves a series of consultations. **Potential impact severity** In case there happens to be a laps in planning and implementation follows the	The following should be noted with regards to planning, priority setting and site selection: a. The plan should indicate that none of the interventions should result in the displacement of people; b. The plan should indicate appropriate of implementation such as building of the water harvesting and erosion

the Regions, woredas and communities on climate smart agricultural development planning; **Activity 1.2.4**; Collate information on agricultural production, management systems and practices in the project areas; **Activity 1.2.5** Undertake survey and analysis of local soil and water conditions and environmental degradation; **Activity 1.2.6** Assess the potential portfolio of options for each relevant adaptation- planning zone, considering elevation, precipitation and soil suitability; **Activity 1.2.7** Develop locally appropriate tools and methodologies to support uptake of climate smart agriculture.	hazards; • Interventions located in sensitive areas resulting in destruction of heritages, interference in wild life movements..etc	plan, there is still a possibility of applying mitigation measures. Thus the severity is low to medium. **<u>Significance of impact</u>** The significance is low to medium.	control structures to be undertaken during the dry season to reduce erosional impacts; c. Project activity sites must be outside: protected areas, biodiversity hotspot, natural and historical heritage sites
Output 1.3: Climate resilient watershed plan designed			
Activity 1.3.1. Collect regional and local watershed information for the relevant project areas; **Activity 1.3.2** Develop an integrated water - agriculture-land- ecosystem and livelihood diversification plans with the communities; **Activity 1.3.3**. Estimate current and future water demand for the relevant	No adverse impacts expected as a result of the activity. However misrepresentation or error in water demand estimate or understating or overstating the influence of climate change may result in adverse impact on communities as a result of		

project area; **Activity 1.3.4**. Undertake a scoping assessment on the potential influence of climate change on future water demand; **Activity 1.3.5.** Provide an indicative water balance (supply-demand) in each Kebele with consideration of current and future risks.	further actions based on these misrepresentations.		
Output 1.4: Integrated community plan to improve adaptive capacity designed			
Activity 1.4.1. Collate existing socio economic data for the project area and conduct vulnerability assessment of the community; **Activity 1.4.2**. Conduct consultation with the local community to understand the available livelihood options and foster innovative adaptive practices; **Activity 1.4.3** Sensitize the community and discuss current climate variability and future climate change risks to better understand vulnerability; **Activity 1.4.4** Identify appropriate options and develop a comprehensive livelihood plan for the project area.	No adverse impacts expected		

Output 1.5. Integrated community decision-making and awareness raising conducted			
Activity 1.5.1. Collating existing livelihood data for the Woreda and Kebele and assessing their vulnerability; Activity 1.5.2. Understand local Woreda development plans and priorities in the community; Activity 1.5.3. Ensure community led inputs on ranking and importance of the various climate resilient options, with community decisions on site selection based on local inputs	No adverse impacts expected		
Component 2: Climate resilient integrated use of water resources **Outcome 2: Food security assured, school enrollment increased, health improved agricultural productivity and potable water supply services and improved, and adaptive capacity of the local community increased.**			
Output 2.1. Potable water supplied using solar pumps supply increased in the project areas			
Activity 2.1.1. Hydrogeological and geophysical studies and supported with support in terms of appropriate satellite imagery analysis conducted in the project areas; Activity 2.1.2. Prepare design and tender document with hydrogeological assessment, design of all works and yield tests, drawings, Bill of Quantities, Specifications, Conditions of Contract and all other required documentation prepared;	No adverse impacts expected No adverse impacts expected		

Activity 2.1.3. Shallow wells drilled; Activity 2.1.4. Elevated water reservoir and water point constructed;; Activity 2.1.5. Complete set of solar powered submersible water pump systems, Solar PVs, including all electro-mechanical works procured; Activity 2.1.6. Pump and electro-mechanical fixtures installed;	**Activity 2.1.3 & 2.1.4** a) decrease in surface and/or groundwater water quality as a result of drilling and operational activities; b) dumping of construction waste, oil spilling of machineries, solid disposal etc. c) Excessive use of groundwater leading to draw down of water table and possible land subsidence. **Activity 2.1.6.** Impact on safety of community members due to exposure to fixtures	**Activity 2.1.3 & 2.1.4** **<u>Probability of impact occurrence</u>** The probability of occurrence is medium due to the nature of drilling activities involving oil and chemical based machineries and operations. **<u>Potential impact severity</u>** Although oils and chemicals used in drilling are not fatal the health impacts can be serious. Thus the severity is o medium to high. **<u>Significance of impact</u>** The significance of impact being a function of the potential severity and occurrence probability: The significance is medium. **Activity 2.1.6.** The probability of occurrence of electrical or mechanical accident is proportional to the safety measures and level of public awareness. The consequence of such accidents may be life threatening and thus severe. The significance is from medium to high	**Activity 2.1.3 & 2.1.4** a)/b) Designated areas for storage of fuels, oils, chemicals or other hazardous liquids b) Refueling to be undertaken in areas away from water systems. c) Pump tests and groundwater quality studies should be carried out to determine suitability of groundwater and the safe yield. **Activity 2.1.6.** • Ensure all electrical and mechanical fixtures fulfill safety standards, no exposed electrical fixtures. • Ensure all users of facilities are aware of the dangers and post warning signs at appropriate places
Output 2.2: Irrigation for agriculture designed and developed			
Activity 2.2.2. Detailed design and tender document including, construction of hand-dug wells, shallow wells, check dams, canals	No adverse impacts expected No adverse impacts expected		

and sprinkler irrigation systems is prepared; Activity 2.2.3. Hand dugwells Constructed; Activity 2.2.4. Hand pumps procured and installed; Activity 2.2.5. Traditional irrigation schemes for hand dug wells upgraded; Activity 2.2.6. Complete sets of solar powered surface water pump systems, Solar PVs, including all electro-mechanical works procured; Activity 2.2.7. Sand dams/subsurface damconstructed; Activity 2.2.8 Irrigation canals for sprinkler systems constructed; Activity 2.2.9 pump and electro-mechanical fixtures installed; Activity 2.2.10. Sprinkler/drip systems procured and installed .	**Activity** 2.2.3/2.2.4. Competition in water use between domestic and irrigation use **Activity** 2.2.5. Water logging in irrigation fields as a result of mal practice **Activity 2.2.6**. No adverse impacts expected **Activity** 2.2.7 possible flood incidents due to inappropriate design considerations. Activity 2.2.8. breeding of mosquitoes due to pool creation Activity 2.2.9. possible accidents from exposed electrical wires Activity 2.10 No adverse impacts expected.	**Activity** 2.2.3/2.2.4. The probability of occurrence competition of use is low since hand pumps are usually used for domestic water supply. The consequence of the incident of competition is low. The significance is thus low **Activity** 2.2.5. The probability of occurrence is low since visible impact will occur depending on soil characteristics and after prolonged irrigation practice. The consequence of water logging is medium and mitigation measures are straight forward. Activity 2.2.7 The probability and severity of the impact is low since tested experience in sand dam design and construction is available in Ethiopia. Activity 2.2.8.The probability of occurrence and severity of the impact is medium. Activity 2.2.9. The probability of occurrence and severity of the impact is medium.	**Activity** 2.2.3/2.2.4 priority should be given to domestic water supply in case of water shortage during drought period, **Activity** 2.2.5. Provide training to farmers on proper irrigation practices Implement surface and groundwater monitoring systems. In cases where high soil salinity is observed employing leaching measures may reduce the salinity level. Activity 2.2.7 Use manuals for sand dam design and construction which are available in Ethiopia. Activity 2.2.8. Construct irrigation canal as per the design specification respecting the slope and dimension of canals. Activity 2.2.9. ensure contractors follow strictly design specifications

Component 3: Climate smart agriculture – land – water - forest integration **Outcome 3. Watersheds' rehabilitated through conservation measures and climate smart agriculture leading to improved ecosystem**			
Output 3.1. Climate smart land management technologies implemented at the farm levels implemented			
Activity 3.1.1. Physical moisture and soil conservation structures constructed; Activity 3.1.2. Biological conservation measures built(e.g. grass strips, hedges, planting of physical measures); Activity 3.1.3. Farmland gully treated; Activity 3.1.4. Introduce and enhance agroforestry scattered trees on farmlands (Faihderbia, Croton, etc.) and introduce homestead multi-storey agro- forestry and soil conservation measures; Activity 3.1.5. Wind breaks/shelter belts and farm boundaries established.	**Activity 3.1.1/3.1.2/3.1.3** • Potential for use of degraded communal land for rehabilitation, with little consultation of communities resulting in loss of access to free grazing land. • Long-term anticipated conflict related to benefit sharing, which will arise as a result of the positive natural resource rehabilitation outcomes of the project's intervention **Activity 3.1.4/3.1.5** • Potential impact resulting from the expropriation of land for conservation and planting activities; • Potential conflict during boundary demarcations.	**Activity 3.1.1/3.1.2/3.1.3** • **<u>Probability of impact occurrence</u>** The probability of expropriation of land, farmers resistance and happening is low while change of land use will happen as a consequence of agro-forestry sub project implementation. • **<u>Potential impact severity</u>** The severity of the impacts is low. • **<u>Significance of impact</u>** The impacts have low significance Activity 3.1.4/3.15 The probability of occurrence is high and the significance is medium.	**Activity 3.1.1/3.1.2/3.1.3** There should be a well-structured consultation process and a practice undertaking conservation measures including use of communal lands. There should be a community lead and owned bylaw, which clearly stipulates benefit sharing and is endorsed by the community. **Activity 3.1.4/3.1.5** To the extent possible, the site for conservation structures should be on communal land and there should be extensive consultation and buy-in from the community for the intended use of the communal land. Demarcation of boundaries of private properties is sensitive and should be done in the presence of kebele officials and with agreement of owners sharing boundaries.

Output 3.2. Integrated watershed management implemented			
Activity 3.2.1. Upper watershed treated with soil and water conservation measures implemented; Activity 3.2.2. Physical and biological soil and water conservation (SWC) measures implemented Activity 3.2.3. Rangeland management practices in pastoral watersheds area improved; Activity 3.2.4. Area closures for enhanced natural regeneration undertaken; Activity 3.2.5. Upper watershed gully treatment undertaken; Activity 3.2.6. Nurseries established or upgraded, produce seedling production, and planting; Activity 3.2.7. Degraded forestland afforested/reforested; Activity 3.2.8. Tree and grass seeds purchased and seedling	**Activity 3.2.1 to 3.2.5** • Potential for use of degraded communal land for rehabilitation, with little consultation of communities resulting in loss of access to free grazing land. • Long-term anticipated conflict related to benefit sharing, which will arise as a result of the positive natural resource rehabilitation outcomes of the project's intervention. **Activity 3.2.6 to 3.2.9** • Potential risk of import of seeds of alien invasive species along with seeds and seedlings' • Potential impact resulting from the expropriation of land for conservation and planting activities;	**Activity 3.2.1 to 3.2.9** • **<u>Probability of impact occurrence</u>** The probability of expropriation of land, farmers resistance and happening is low while change of land use will happen as a consequence of agro-forestry sub project implementation. • **<u>Potential impact severity</u>** The severity of the impacts is medium. • **<u>Significance of impact</u>** The impacts have low to medium significance. In general activities under this output are environment enhancement measures and the positive impacts in most cases outweigh the adverse impacts.	**Activity 3.2.1 to 3.2.5** • There should be a well-structured consultation process and a practice undertaking conservation measures including use of communal lands. • There should be a community lead and owned bylaw, which clearly stipulates benefit sharing and is endorsed by the community • To the extent possible, the site for conservation structures should be on communal land and there should be extensive consultation and buy-in from the community for the intended use of the communal land **Activity 3.2.6 to 3.2.9** • Strict control and screening of imported seeds before dissemination • In the less likely case of expropriating of land from individual farms, compensation should be made in line with the requirements of the rural land administration and use proclamation (No. 456/2005)

produced; Activity 3.2.9. Establish community based systems for grazing land, efficient feed conservation management systems and practicing stall-feeding established.			
Component 4: Resilient livelihood diversification **Outcome 4: Livelihoods of the local communities is diversified and improved market access ensured**			
Output 4.1: Livelihood diversification is fostered and communities made more resilient and diversified livelihood options implemented at local levels/in the project areas			
Activity 4.1.1. Lowland fruits purchased and adopted and vegetable productions promoted; Activity 4.1.2 Appropriate fruit management tools provided; Activity 4.1.3. Forage seed supplies facilitated; Activity 4.1.4. Small chicken-egg hatcheries promoted; Activity 4.1.5. Access to credit to support purchase and dissemination of hatchery units, modern farm beehives, seed of bee flora, improved; veil, glove, smoker, boots, brush, chisel and sprayer for beekeepers Activity 4.1.6. Improved varieties of sheep and goat introduced and	**Activity** 4.1.1./4.1.2 Possible farmers resistance due to long gestation period of fruit trees to accrue benefits **Activity** 4.1.3 Potential risk of import of seeds of alien invasive species along with seeds and seedlings' **Activity 4.1.4. to 4.1.8** • Generation of solid waste (hazardous and non hazardous) and impacts of site level infrastructure construction; • solid waste and pollutants (including methane) associated to	**Activity** 4.1.1./4.1.2 ***Probability of impact occurrence is*** **Low,** given the benefits of fruits and vegetables production is widely recognized in rural Ethiopia. ***Potential impact severity is*** **low** **Activity** 4.1.3 ***Probability of impact occurrence is*** Low to medium and if invasive species seeds happen to get their way in to the rural environment the impact may be severe, .Thus the significance of the impact is medium to high. **Activity 4.1.4. to 4.1.8** ***Probability of impact occurrence is*** **medium** due to already existing culture of	**Activity** 4.1.1./4.1.2 Conduct prior consultation with farmers on the benefits fruit trees to supplement their income. **Activity** 4.1.3 During seed dissemination stage ensure the quality of seeds and ensure that no alien invasive seed species are disseminated **Activity 4.1.4. to 4.1.8** • Solid waste (hazardous and non hazardous) should be managed as per the requirements of Ethiopia's Solid

strengthened along with supporting distribution of imported (more resilient) sheep and goat breeds; Activity 4.1.7. Facilitate Access to credit to purchase is improved and modern farm beehives disseminated; Activity 4.1.8. Access to a credit to purchase and distribute seed of bee flora is improved; Activity 4.1.9. Access to credit to purchase veil, glove, smoker, boots, brush, chisel and sprayer for beekeepers, Development Agents (DAs) and experts is improved; Activity 4.1.10. Market assessment and value chain analysis along with facilitating better access to market informationis conducted; Activity 4.1.11. Collective and individual access to financial and support services are facilitated; Activity 4.12. Better access to market information is facilitated; Activity 4.1.13. Interventions to address market failures are developed.	the production of livestock, poultry and apiculture • Impacts related to quality of seeds adulteration • Impacts related to spread of livestock and chicken disease • Impacts related to Import of exotic foreign livestock breeds **Activity 4.1.9 to 4.1.13** No impact is expected	livestock and poultry management in the rural areas. However great care should be exercised in importation of seeds and exotic breeds . ***Potential impact severity for land expropriation is*** **Medium** sincethere is already a strong system and legally stipulated requirement for the compensation of expropriated land ***2.Probability of impact occurrence is*** **High since**Solid waste, effluents, air pollution and noise issues are typical impacts from machineries. ***2,Potential impact severity*** is Low since the nature of the project such impacts will not have sever implications	Waste Management Proclamation (517/2007); • Used oil traps and other effluent/discharge management interventions should be put in place; • Dust suppression technique should be in place; • Provide workers operating in these areas personal protective equipment, including mufflers, as per the requirements stipulated in the Labour Proclamation (No. 377/2003). • During seed dissemination stage ensure the quality of seeds and ensure that no alien invasive seed species are disseminated
Component 5: Capacity building, monitoring, evaluation and learning. **Outcome 5: Knowledge transferred and lessons learnt captured at all levels through results based monitoring and evaluation.**			

Output 5.1. Capacity built and knowledge transferred			
Activity 5.1.1.Ttraining on operation and maintenance on Solar PVs and hand pumps at the community and Woreda level provided; Activity 5.1.2 Training conducted for local planners and community representatives on the integrated community plan ; Activity 5.1.3 Training conducted at the community and Woreda level onimplementing the climate smart agricultural development plan; Activity 5.1.4 Training conducted at the federal and regional level on data extraction and re-programming of ground water monitoring devices; Activity 5.1.5 Skills created at the community level on the projects focusing on livelihood diversification initiatives; Activity 5.1.6 create awareness on the results framework of the adaptation programme, the CRGE facility M&;E system as well as safeguards frame work, and operations manual, and training and guidelines manuals developed at the community and Woreda level Activity 5.1.7 Institutional capacity building at various levels in terms of	No adverse impacts expected		

logistics and office furniture and equipment. enhanced			
Output 5.2. Progresses and results are regularly monitored and evaluated of the project activities and lessons well documented			
Activity 5.2.1. Baseline analysis for the project areas developed; Activity 5.2.2. Regular progress reports and results recorded/process documented; Activity 5.2.3. Annual performance Assessment undertaken and assessment or review workshops conducted; Activity 5.2.4. Joint Monitoring Missions organized(annual); Activity 5.2.5. Conduct Mid-term and End of Project Evaluation; Activity 5.2.6. Mid term and final financial Audits conducted.	No adverse impacts expected		
Output 5.3. Iterative learning (adaptive management) implemented;			
Activity 5.3.1. Data from ground water monitoring devices and analyzed and result is synthesized for planning and research purposes; Activity 5.3.2. Map the output level of a certain type of crop according to the adaptation-planning zone to understand the productivity level; Activity 5.3.3. Identify specific cases and undertake in-depth review or evaluation	No adverse impacts expected		

to draw lessons for upcoming phases			
Output 5.4. Effective mechanisms are created to communicate project results and lessons Communication and outreach conducted.			
Activity 5.4.1 Capacity created to use the CRGE Facility registry system and website is used to publish and share project results; Activity 5.4.2 Publish Bi-Annual progress reports is published; Activity 5.2.3. Create Institutional regular Learning Events platforms(inception, mid-term and final); Activity 5.2.4. Organize annual learning and knowledge sharing events conducted at the regional level.	No adverse impacts expected		

12. Environment and Social Management Plan

The ESMP consists of a set of mitigation, monitoring and institutional measures, including policies, procedures and practices – as well as the actions needed to implement these measures – to achieve the desired social and environmental sustainability outcomes.

An ESMP will consist of separate sections on:

1. Social and environmental impact mitigation;
2. Social and environmental sustainability monitoring;
3. Capacity development;
4. Stakeholder engagement;
5. Implementation action plan.

The hierarchy of social and environmental impact mitigation includes , in descending order: a) Avoid, prevent or eliminate environmental and social risks and adverse impacts; b)identify measures and actions to minimize and mitigate impacts; c) identify measures to offset them by enhancing the proposed project's, and d) identify compensatory measures to balance the residual adverse impacts.

The ESMP is presented in a tabular form in which the following key environment and social management issues are outlined with respect to impacts trigerred by the various interventions of the project:

Environment Parameters: key parameters include Flora and Fauna, Surface and Groundwater Quality, Erosion, Drainage and Sediment Control, Noise and Vibration, Air Quality, Waste Management and Social Management.

Source and Potential impacts: the source of impact and description of the impacts are indicated in this column.

Mitigation/Management measures: The mitigation and management measures for each of the impacts are included in this column.

Project phase: the impacts and their respective measures and the appropriate time of action is addressed in this column.

Responsible party: The party responsible for undertaking the mitigation measures is indicated in this column.

Indicators: key indicators that need to be measured to show compliance or non compliance and progress are indicated in this column

Monitoring and Reporting: What is to be monitored by whom and the frequency of monitoring are indicated in this column. The purpose of monitoring and reporting is to ensure that project impacts are addressed by the parties responsible on a timely basis and complaints of project affected persons(PAPs) are seriously considered in addressing their concerns.

Environment and Social Management Plan

Environment Parameters	Source and Potential impacts	Mitigation/Management	Project phase	Responsible party	Indicators	Monitoring and Reporting

Environment Parameters	Source and Potential impacts	Mitigation/Management	Project phase	Responsible party	Indicators	Monitoring and Reporting
Flora and Fauna	**Source:** Site clearance for project activities and access roads **Impact:** Habitat loss and disturbance of fauna **Source:** Noise from construction works, plant and vehicles **Impact:** Disturbance to fauna **Source:** Leaks/ spillages from plant, vehicles and storage compounds. **Impact**: Soil contamination and impacts on vegetation.	• Limit vegetation clearing and minimize habitat disturbance through adequate protection and management of retained vegetation. • Avoid any damage to the trees near and around project activities. • Ensure that construction works are only undertaken in defined working hours. • Ensure that noise suppression systems on plant and vehicles are maintained. • Ensure proper storage for oils and fuels and in case of spill put in place cleaning equipment and clear instructions on cleaning spills.	Construction	Site Supervisor as per design and construction specifications. Contractor Contractor	• the areas that have been rehabilitated during the preceding week • increase in vegetated area and saved trees frequency of complaints of communities frequency of spills and damage extent	• Report to MoEFCC on any loss of endemic flora and non-compliance with the ESMF, twice a year during the construction period. • • Report to MoEFCC at the end of the project on vegetated area and saved trees. • Daily and maintain records • Daily observation and maintain records

Environment Parameters	Source and Potential impacts	Mitigation/Management	Project phase	Responsible party	Indicators	Monitoring and Reporting
	Source: Introduced flora and fauna species **Impact:** proliferation of alien species	• Prevent introduction of weeds/pests/diseases by sourcing appropriate weed/pest/disease free seed and stock • Re-vegetate disturbed areas using native and locally endemic species that have high habitat value.	Seed procurement and distribution stage	MoANR and Development Agents	• Seed stock	Professional screening of imported seeds and reporting to MoANR
Surface and Groundwater Quality	**Source:** irrigation mal practice **Impact:**Water logging and salinization due to irrigation malpractice	• Provide training to farmers on proper irrigation practices •	Post-construction	MoWIE and wereda project officers	water quality parameters	Maintain records Report both compliance and non-compliance with the set quality standards
	Source: construction activities and equipment operation. **Impact:** pollution of surface and ground water	• Implement surface and groundwater monitoring systems. • Take precautionary measures in protecting water sources;	Construction and Post-construction phases	contractor	Water quality parameters	Maintain records
	Excessive use of groundwater leading to draw down of water table and possible land subsidence	Pump tests and groundwater quality studies should be carried out to determine suitability of groundwater and the safe yield.	Pre-construction	Site supervisor and MoWIE	Water table	Maintain records on noticing subsidence

Environment Parameters	Source and Potential impacts	Mitigation/Management	Project phase	Responsible party	Indicators	Monitoring and Reporting
Erosion, Drainage and Sediment Control	**Source:** earthwork activities **Impact:** Loss of soil material and surface and ground water affected by sedimentation	Minimize earthwork using machineries; Relocate soil stockpiles from the vicinity of well sites and water bodies.	Construction	MoANR Wereda project officers	Soil depth eroded in centimeters	conduct site inspections on a weekly basis and measure soil depth eroded at representative sites-by Woreda M&E officer
Noise and Vibration	Source : vehicles and drilling machines Impact: excessive noise disturbing residential and other community centers	Minimize all noise and vibration from trucks and drilling machines.[the extent of use of such noise sources is limited due to the nature of the project]	Construction	MoWIE and contractors	It is not practical to use decibel as threshold due to the impracticality of using instruments to measure noise levels. Thus frequency of complaints from community members may be taken as indicator	Record number of complaints

Environment Parameters	Source and Potential impacts	Mitigation/Management	Project phase	Responsible party	Indicators	Monitoring and Reporting
Air Quality	• **Source:** Dust from site clearance and construction works • **Impact:** Dust emissions resulting in potential nuisance, human health and aesthetic impacts • **Source:** Emissions from plant and vehicles **Impact**: Reduced air quality with consequent nuisance. And Greenhouse gas emissions	• Implement dust suppression measures for all stockpiles • Ensure that all plant is turned-off while not in use. The nature of the project and the frequency and duration of use of such emitting plants is not significant.	construction	contractors	Number of complaints from community members	Kebele DAs make daily observation and record such incidents and complaints of residents
Waste Management	**Source:** packaging material disposal, construction material, animal waste, **Impact**: health impact and aesthetic disturbance **Source:** waste generated by project workers. **Impacts**: communicable disease that may affect communities	• waste generation is minimized through avoidance, reduction, reuse, and recycle; • Remove litter fromproject sites as a result of activities by site personnel; • Provide proper sanitary facilities to workers	Pre and during construction	Site supervisors and Contractor	Number of complaints from community members	Maintain records of number of complaints by community members.

Environment Parameters	Source and Potential impacts	Mitigation/Management	Project phase	Responsible party	Indicators	Monitoring and Reporting
Social Management	**Source:**Changes in land use **Impact**: social conflict due to shortage of land **Source**: deep well drilling **Impact**: exposure to accidents due to vehicles and equipment movements **Source**: project land requirement for interventions **Impact** :land appropriation and loss of livelihoods	• Carry out community consultation on the purpose and benefits of making changes to land use and get community buy-in on change of land use • ensure community consultation and participation throughout the project; • avoid adverse impacts to local community during construction and operations and where not possible, minimize, restore; • ensure community land use is optimized • cultural heritage is not adversely impacted; • community health and safety is protected • complaint and grievance mechanisms are put in place • long-term social benefits are achieved.	Pre-construction and construction	Regional sector Bureaus and Woreda sector offices	Frequency of conflicts Number of accidents Cases of land appropriations	Maintain records on frequency of conflicts and accidents. Maintain records of cases of land appropriations and grievances and results of grievances.

13. ESMF Monitoring Plan

Monitoring activities during the implementation phase provides crucial information about the environmental and social impacts of the project and the effectiveness of mitigation measures. Monitoring is an important tool to inform decision makers and communities on trends of project implementation and operation. This table includes some elements from the ESMP table above in addition to the overall ESMF monitoring plan.

Important Impact issues	Proposed Action/ Measures	Implementation tool/criteria	Project stage	Responsibility
• Potential risk of import of seeds of alien species along with basic seeds	• During seed dissemination stage ensure the quality of seeds and ensure that no alien invasive seed species are disseminated.	Seed certification acquired **[indicator** –certificate]	Tender document preparation and sample seed testing	MoANR should circulate the seed certification to all woredas
• Potential risk of alienation of households from getting such assistance due to the social standing, religion, political stance, gender	• During dissemination of seedlings to households, mechanism should be put in place to ensure all households are treated equally and impartially	By laws on distribution of inputs in place [**indicators**-number of conflict cases and number of resolved cases]	Project design stage	Grievance mechanism should be utilized in case of alienation by Kebele Development Agents

Important Impact issues	Proposed Action/ Measures	Implementation tool/criteria	Project stage	Responsibility
• Potential impact resulting from the expropriation of land for conservation and planting activities;	• To the extent possible, the site for conservation structures should be on communal land and there should be extensive consultation and buy-in from the community for the intended use of the communal land. • In the less likely case of expropriating of land from individual farms, compensation should be made in line with the requirements of the rural land administration and use proclamation (No. 456/2005) • The planned conservation activities should be well designed and executed with full participation of communities along with long term benefit sharing mechanisms for managing benefits resulting from rehabilitation and conservation activities	Acquire the official commitment of Woreda offices for availing communal land for AF projects implementation. **[indicator**-letter of commitment] Conduct awareness meetings for woreda and kebele officials and staff on implementation of proclamation (No. 456/2005) [**indicator-**number of participants] Design of the various sub projects(conservation structures, hand dug wells, deep wells, ponds..etc) should be designed following existing guidelines and should be reviewed and approved by the project CRGE Facilty and responsible line ministries, including long term benefit sharing mechanism. [**indicators**-design and approval documents]	Feasibility study stage; Design stage Design stage	WoANR Woreda to submit the letter of commitment to CRGE Facility. MoANR and MoWIE In case of expropriation Grievance mechanism should be utilized by Kebele Development Agents CRGE Facility and line ministries should act on the grievance report

Long-term anticipated conflict related to benefit sharing, which will arise as a result of the positive natural resource rehabilitation outcomes of the project's intervention	There should be a community lead and owned bylaw, which clearly stipulates benefit sharing and is endorsed by the community.	Prepare the bylaw and pretest it at selected woredas and kebeles before making use of the bylaws in project implementation. [**indicator-**approved bylaw document]	Design stage and during the life of the project	Line ministries through use of consultants. Include in a quarterly report incidents of conflicts due to benefit sharing of project interventions
Generation of solid waste (hazardous and non hazardous) and site level infrastructure construction/ development for improving production of livestock, poultry, and apiculture.	• Solid waste (hazardous and non hazardous) should be managed as per the requirements of Ethiopia's Solid Waste Management Proclamation (517/2007); • Used oil traps and other effluent/discharge management interventions should be put in place; • Dust suppression technique should be in place; • .Provide workers operating in these areas personal protective equipment, including mufflers, as per the requirements stipulated in the Labour Proclamation (No. 377/2003	Provide training for woreda, kebele and PCU staff on waste disposal and implementation of Proclamation (517/2007); including handling of used oils, dust and use of protective gears. [**indicator**-number of participants] Monitoring and ensuring such arrangements are in place and functioning [**indicators**-as per design and monitoring documents]	Design stage Implementation and operation stages	Line ministries through use of consultants including on site practical training. DAs to inspect waste disposal situation at all project sites and submit inspection report to Woreda M&E expert on a monthly basis.Woerda M&E experts to provide DAs with inspection checklist.

• Land subsidence due to draw down of water level during over pumping. • Water logging and salinization due to irrigation mal practice • Water allocation conflict	• proper pump test should be carried out to determine the safe yield and care must be exercised not to over pump. • provide training to farmers on proper irrigation practice • priority should be given to domestic water supply in case of water shortage during drought period	• Carefully prepare the contractual document for well drilling to ensure land subsidence does not occur. • Provide training to farmers in proper irrigation practice • Woreda and kebele employees should be trained in conflict resolution. **[indicators**-salinity level measurements ,land subsidence measurements, number of trained farmers, number of cases of conflicts]	Design stage Continuing through implementation and operation phases	Line ministries contractors and pump operators. [Safe yield of wells and pump operating duration made clear to operators]; field salinity level measurements on annual basis to be reported to MoANR.
• Some invasive tree species consume large amounts of water; this lowers the water table, reduces water flow, and increases soil erosion • land-use change Impacts • Impacts of spraying of toxic chemical fertilizers and herbicides	• Avoid the use of invasive species and water consuming species for plantation. • Carry out community consultations on the purpose and benefit of making such change in land use. • The application of pesticides and herbicides should follow the national guidelines	• Use national guidelines and mechanisms for seed certification [**Indicators**-seed examination reports] • Agreement of the beneficiaries on proposed land use changes should be secured. [**Indicator**-agreement document] • Use of integrated pest management and other national guidelines. **[Indicator**-spraying reports]	Implementation and operation stages	line ministries

14. Responsibilities for ESMF implementation

Project Phase	Tasks	Responsible
Feasibility study Preparation And ESMF preparation	Review and approve the ESMF	MoEFCC/CDKN/
Detailed Project Design and implementation Plan preparation including tender documents preparation	Review and approve if design documents and tender documents have integrated the ESMF requirements	MoEFCC+ Implementing Ministries/CDKN Consultants
Review and Approval of ESMF	• Review sub-project proposal for safeguard impacts and social risks . • Assess the adequacy and feasibility of the safeguard measures; • Assess the capacity of environment units of line ministries, regional states and Woreda offices to implement safeguard measures • Publicly disclose safeguard related information	CRGE Facility Coordination Unit/CDKN
Review and Approval ESIA and ESMP for some sub projects as per the screening exercise	• Conduct and review project specific and location specific ESIAs	Line Ministries and consultants
Project Implementation, construction	• Ensure the implementation of all safeguard measures during implementation	Line ministries and contractors
Operation stage	• Ensure all operation guidelines are made available to kebeles where projects are located	Line ministries
Monitoring and Evaluation	• Ensure project completion reports includes implementation of safeguard measures. • Put in place a standing procedure for submission of monitoring reports on safeguard measures functioning and grievance reporting	Line ministries and Woreda M&E Experts (Kebele Development Agents should be trained to handle the M&E and reporting tasks)

15. Training and Capacity Building Requirements

The successful implementation of the ESMF requires capacitated federal, regional states and Woreda organizations that are planning and implementing the project and the mitigation measures recommended by the ESMF and project specific ESIAs.

The capacity building activities include short term trainings, awareness workshops, office equipment and vehicles. The details should be based on capacity gaps analysis at federal, regional and Woreda levels. There are possibilities that implementing line ministries and regional and Woreda level offices may also contribute to their capacity building needs by providing the necessary office space and facilities for the implementation of the ESMF

The following table summarizes the training aspect of the capacity building component

	Issue	Participants	Duration and frequency
1.	National and international safeguard policies	Regional Bureaus, Woredas Offices 16 participants	1 round for 2 days
2.	ESIA planning and implementation	Regional Bureaus, Woredas Offices 16participants	1 round for 3 days
3.	Monitoring and evaluation	Regional Bureaus, Woredas offices and kebel Development agentsf 24 participants	1 round for 2 days
4.	Structural and non-structural mitigation measures	Regional states, Woredas PCU staff and environment units staff 22 participants	2 rounds 2 days each
5.	Conflict resolution and grievance mechanism and procedures	Regional Bureaus, Woredas Offices, Kebel Development agents 24 staff	2 rounds 2 days each

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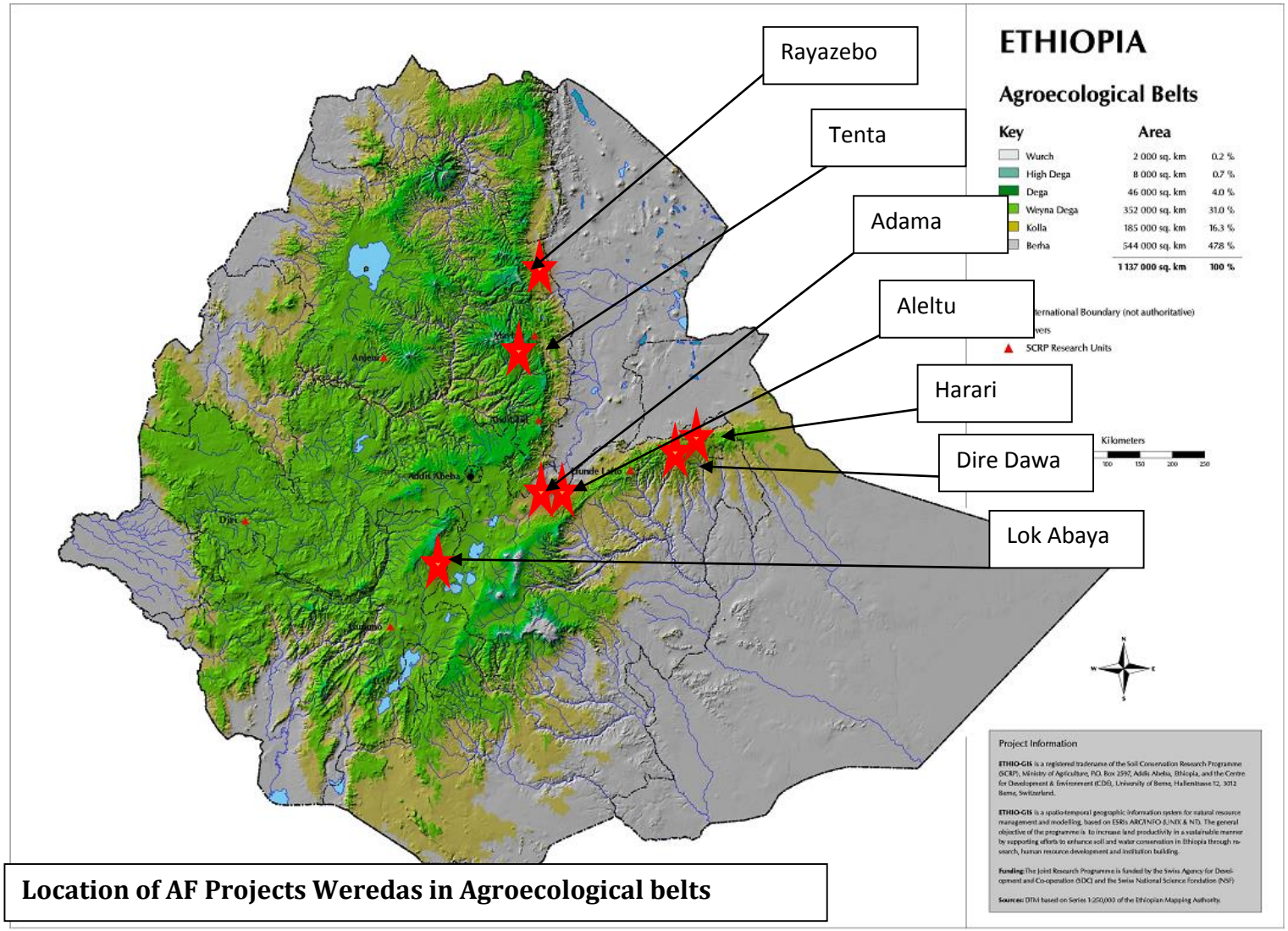
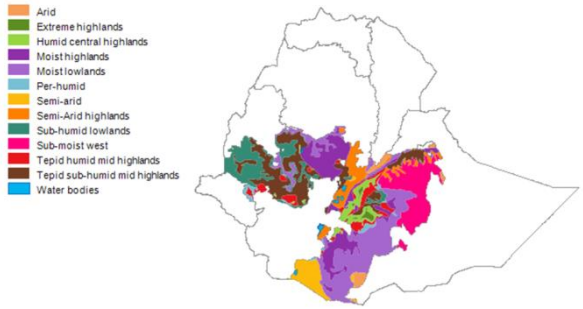
Annex 1. Brief Project Weredas Baseline Information[compiled from Regional Adaptation plans, Regional CSE]



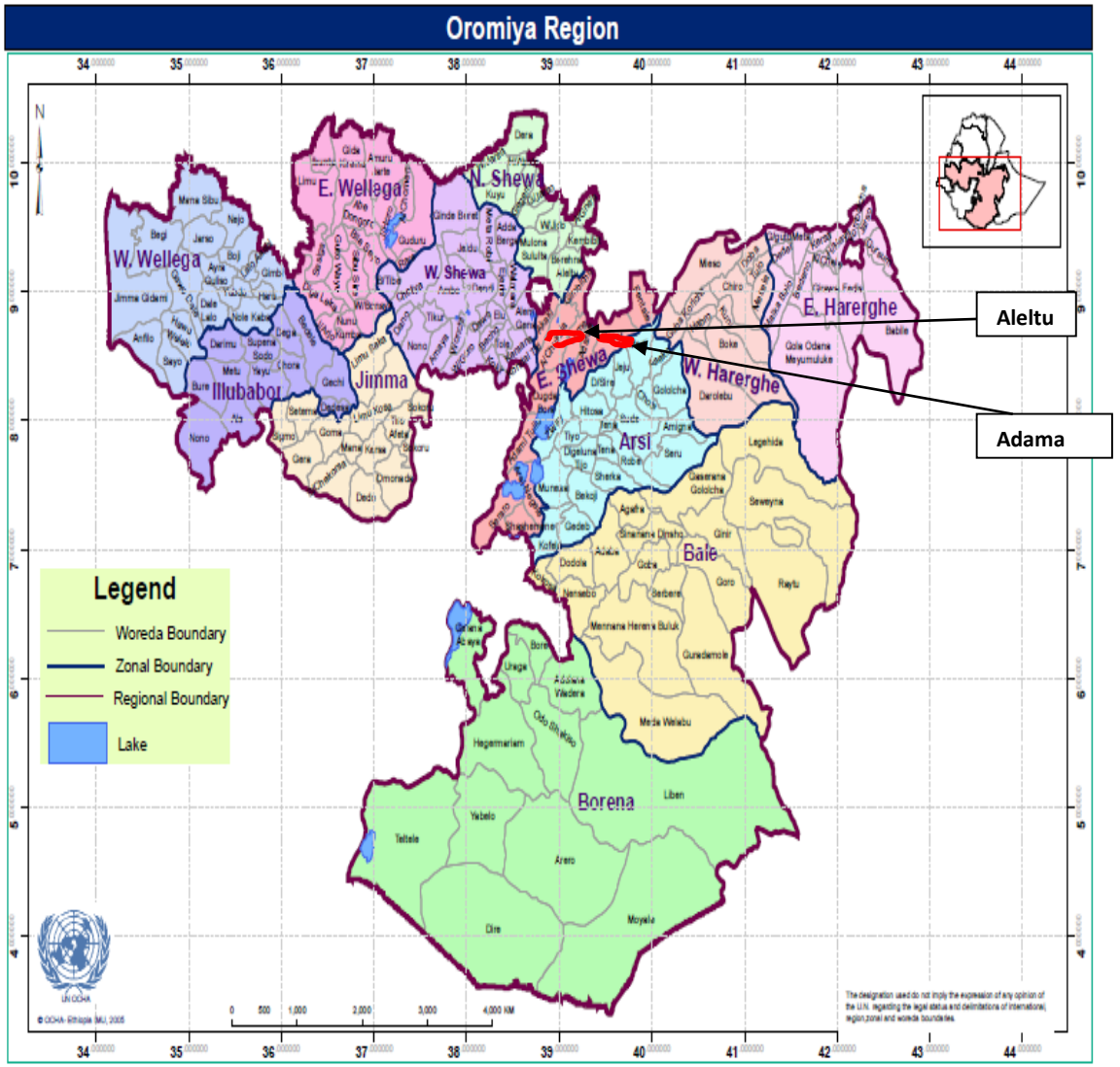
Location of AF Projects Weredas in Agroecological belts

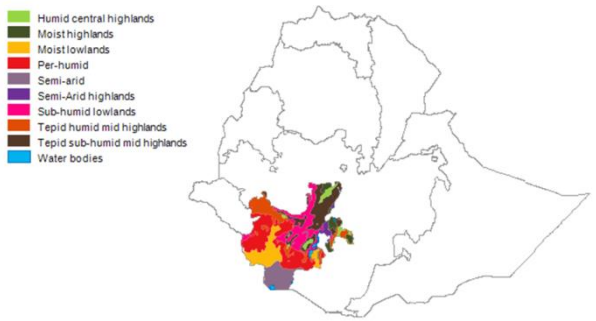


Oromiya (Oromia) region

The Region extends from 3o 24'20"–10o 23'26"N latitudes and 34o07'37"-42o58'51"E longitudes.

The total area of the Region is 363,136 km2 , accounting for about 34.3 percent of the total area of the country. Administratively, the Region is divided into 18 administrative zones, 304 woredas (out of which 39 are towns structured with the level of woredas and 265 rural woredas), more than 6,342 peasants and 482 Urban Dwellers Kebeles. Its relief ranges from less than 500 m asl to high ranges that culminate into Mt. Tullu Dimtu (4,377masl). The climate types include dry climate (the hot arid, semi-arid, dry sub-humid climates), tropical rainy climate (the tropical humid and tropical sub-humid climates) and temperate rainy climate (the warm temperate humid, the warm temperate per humid and the cool highland climates). Aleletu and Adama Weredasare located in the rift valley.

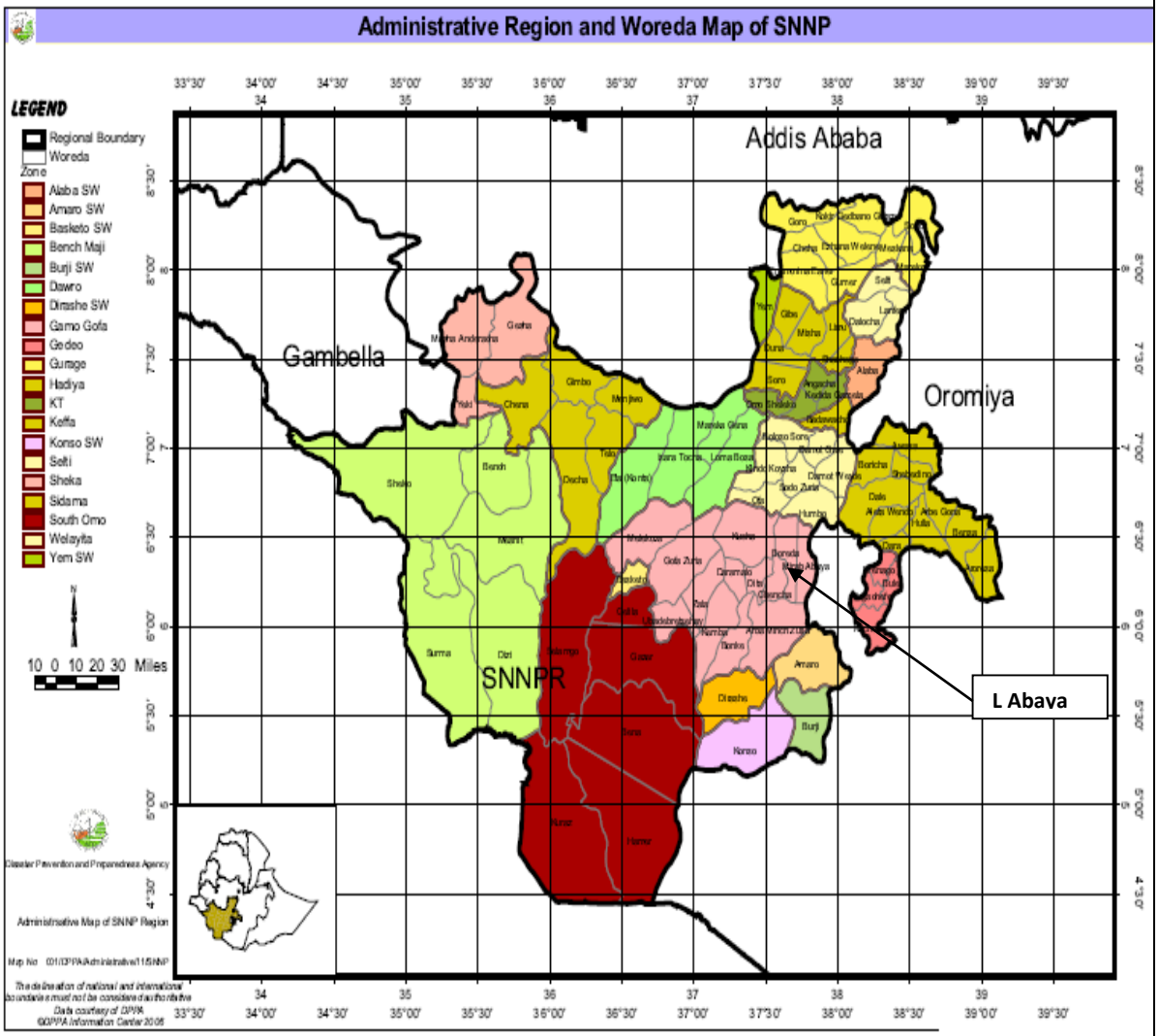


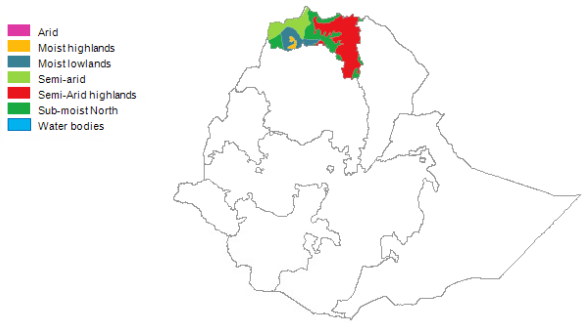


SNNPR

SNNPR is located 4º43º-8º58º North and 34º88º-39º14º East and altitudinal ranges bfrom 350masl in l.Turakana area to 4200masl in the mount Guge area and has an area of 110,932 sq.km. The regional state has 13 zones ,8 special Weredas, and 126 ¨Weredas 22 urban administration 3,689 urban and 238 rural kebeles.

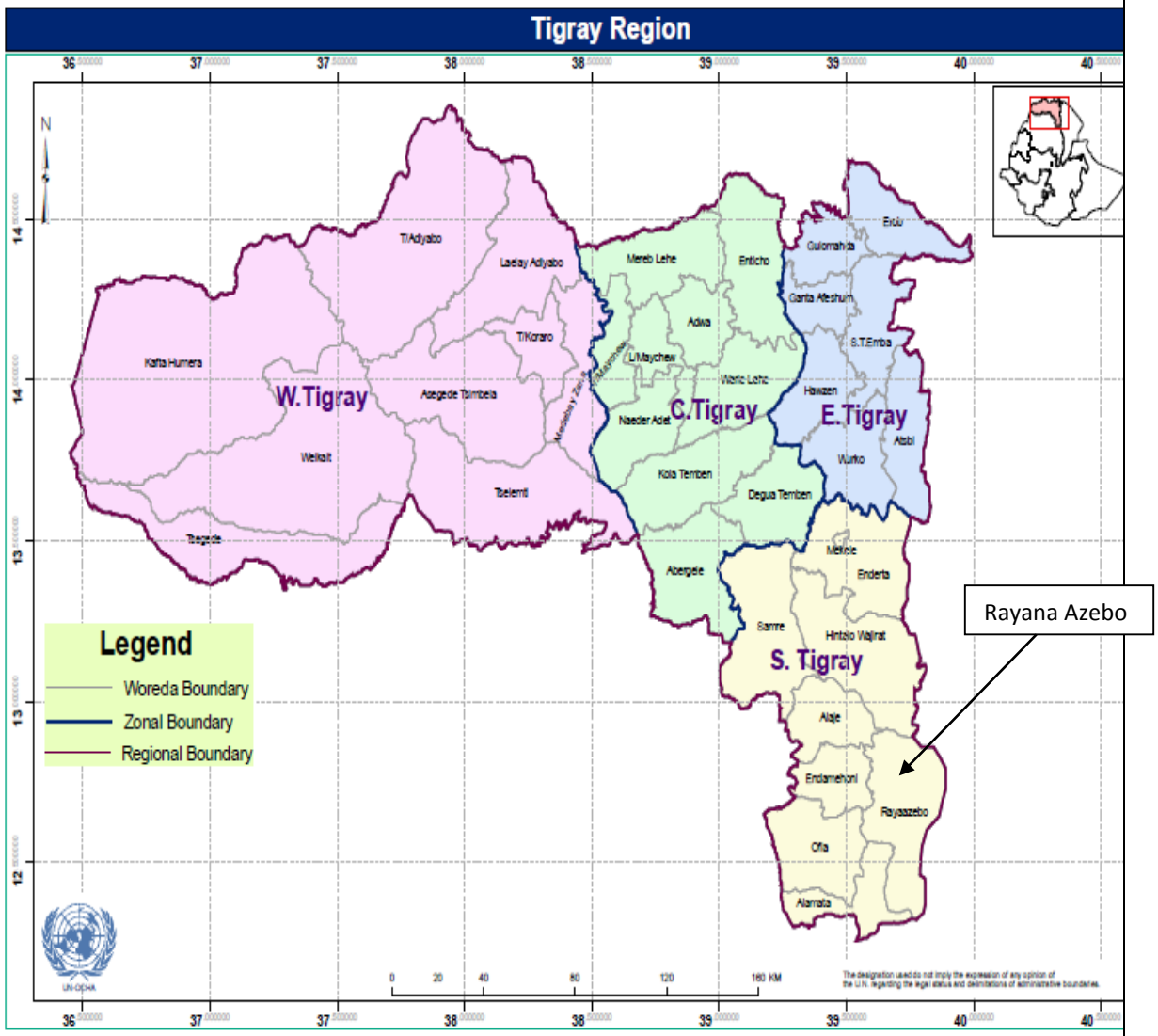
The region has 5 agroecological zones, 6.2% semi arid and water deficit, 49.8% dry lowland ,36.5% temprate moist, 6.8% humid , 0.7% per-humid. Average temperature varies between 7.5 c and 27.5 c and annual rainfall ranges between 400 and 2200mm.

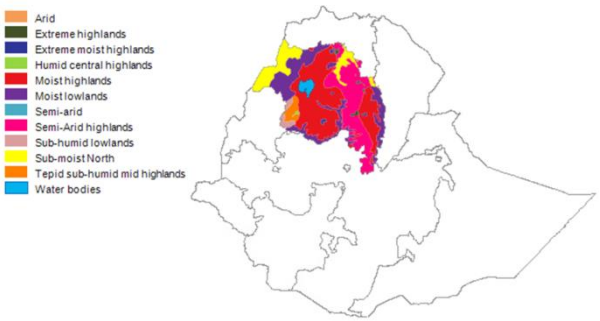




Tigray

The zone lies in the kolla agro-ecology and plains, and undulating mountains dominate the terrain. The availability of sufficient farmland, fertile soils. Soil erosion, deforestation and water depletion are the major environmental problems reported in the wereda. Shortage of water both for humans and livestock, poor saving habit, poor land condition and shortage of improved agricultural inputs are additional challenges in the area. Shortage of water (as a result of drought) both for humans and livestock is the major challenge indicated in the wereda. communal tap is the main source of drinking water from which 58% of the households obtain drinking water followed by ponds and rivers. However, 79% of the households use the water without making any type of treatment. With regard to sanitation, 20% of the households reported to have no toilet facility, while 79% reported using outdoor latrine.



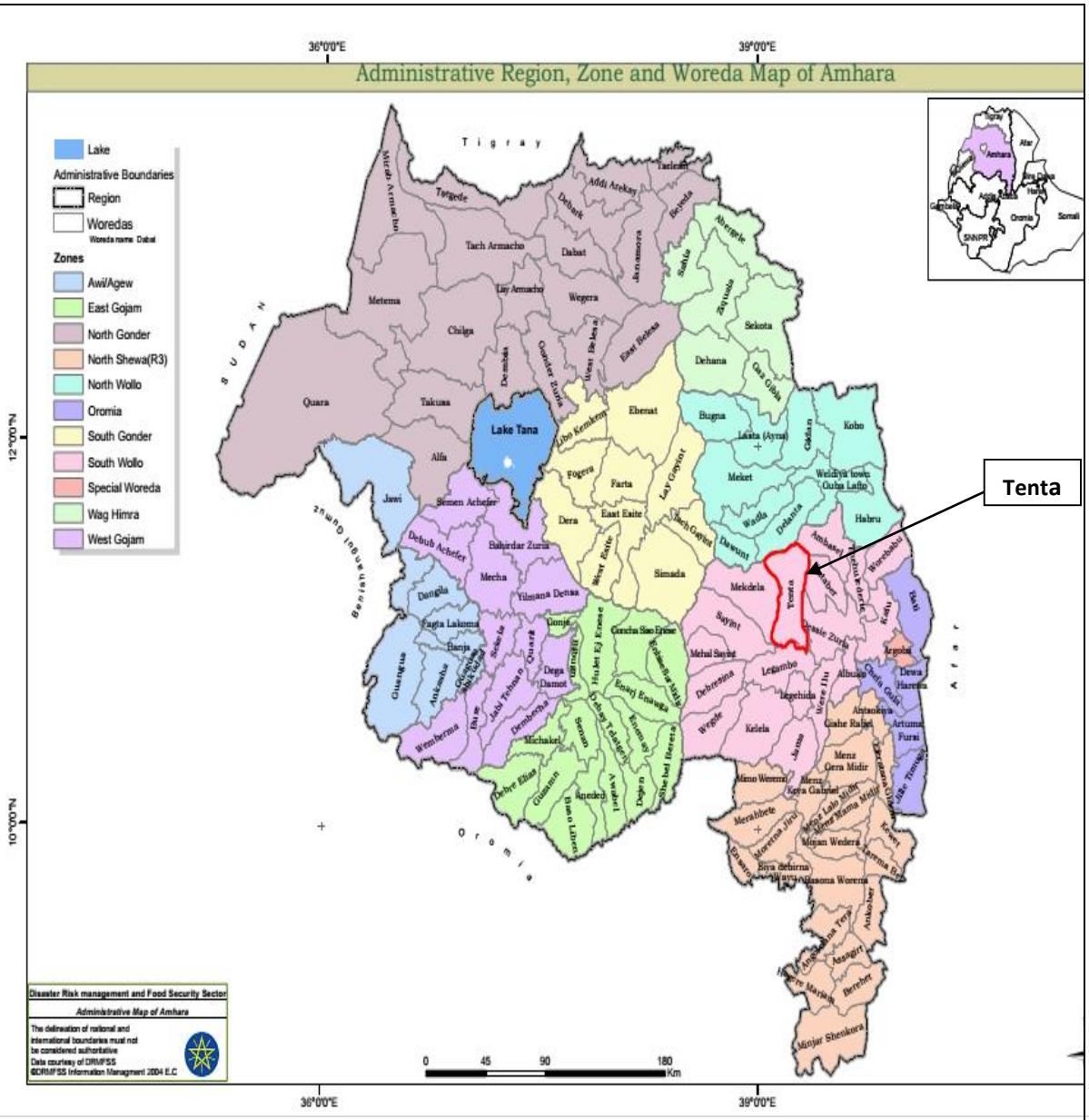


Amahara

The Amhara Nation Regional State extends from 9^0 to 13^0 45'N and 36^0 to 40^0 30"E.It covers approximately 170,152 km^2The region therefore has climatic zones ranging from hot dry tropical (800-1500 m) sub-tropical(1500-2300 m), temperate (2300-3000m), and alpine(over 3000 m). The highlands above an altitude of 1500 m experience relatively cool temperatures conditions in contrast to the lowlands.

In southern Wello zone around Mersa the spring and summer growing periods also merge together to produce a total LGP of more than 240 days.

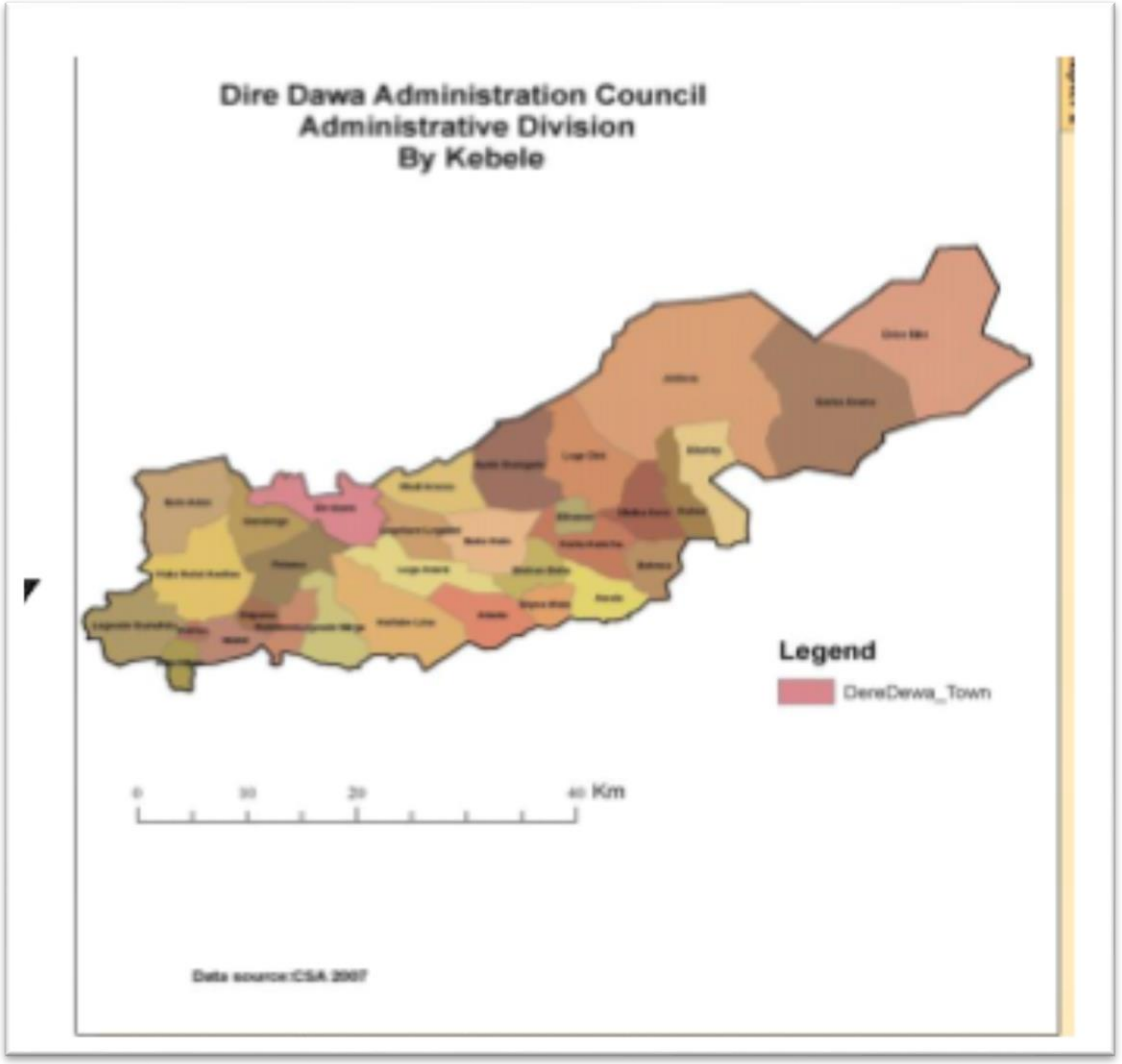
Water pollution, Soil erosion, Land slide and deforestation are the major environmental problems in the area. 58% of the household drink water from river or stream and covered well or borehole and 92% of the household drinks water without any treatment.

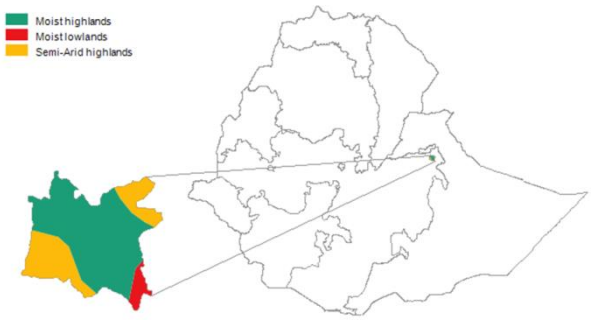


Dire Dawa, Wahil Woreda

The Dire Dawa Administration (DDA) is geographically located in the eastern part of the country specifically lying between 900 27' and 900 49'N latitudes and between 4100 38' and 4200 19'E longitudes and the town is 515 Km from Addis Ababa and 333 Km from the international port of Djibouti. The DDA 's altitude rangs from 960 m.a.s.l in the northeast to 2450 m.a.s.l in the southwest with the Kolla AEZ (below 1500m) and Woina Dega (above 1500m) has been recognized.

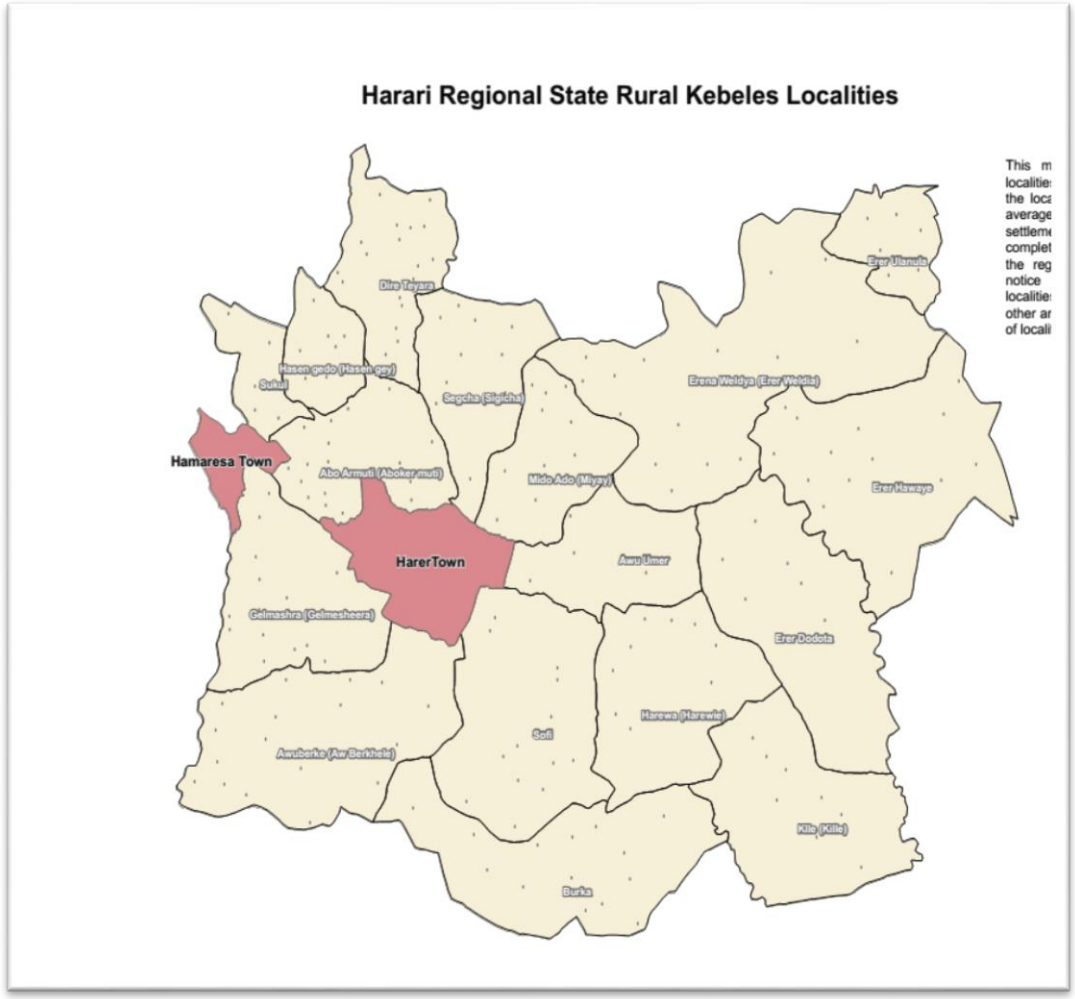
About 9.19 percent of the total land area of the region is covered by physiognomic vegetation; 4.93% prosopis Juliflora plantation, 3.67 % open shrub land and 0.58% dense shrub land. Whereas, the vast area of the region, 60.48%, is an exposed soil, sand or rock with scrubs and grasses.





Harari region Erer Woreda

Harari regional state is located in the eastern part of Ethiopia. The total geographical area of the region is about 343.21 km2. It is geographically located between 42.03 – 42.16 north of latitude and 9.110-9.240 east of longitude.Harari people's regional state is divided in six urban and three rural administrative waredas (main kebeles). These administrative kebeles are further divided into 19 sub-kebeles (inurbane) and 17 sub-kebeles (in rural). The region is mainly categorized in two agro-ecological zones. 90% of the land area of the region is estimated to be mid-high land (weyna dega), between 1400 – 2200 meter above sea level, while the remaining 10% is kola (approximately found below 1500 meter above sea level). It is a predominantly kola agricultural livelihood zone with woina-dega pockets. 66% of the household drink water from river or stream, covered well or borehole and open well. Besides 91 % of the household drinks water without any treatment.



Annex 2. DIRECTIVE NO.1/ 2008:A DIRECTIVE ISSUED TO DETERMINE PROJECTS SUBJECT TO

ENVIRONMENTAL IMPACT ASSESSMENT

WHEREAS, Article 5 of the Environmental Impact Assessment Proclamation No. 299/ 2002: provides for the determination of categories of projects requiring environmental impact assessment;

NOW, THEREFORE, this directive is issued in accordance with Article 9(3) of the Environmental Protection Organs Establishment Proclamation No. 295/2002.

1. **Designation**

This directive may be cited as the ''Directive No. 2/ 2008 issued to determine the Categories of projects subject to the Environmental Impact Assessment Proclamation No. 299/ 2002 "

2. **List of Types of Project Requiring Environmental Impact Assessment**

The Environmental Impact Assessment Proclamation No. 299/ 2002 shall be applied to the types of project listed under these directives.

3. **Regional Directive**

Any Regional Environmental Agency may issue another directives based on this directive.

4. **Effective Date**

This Directive shall enter into force as of the date signed by the Chairperson of the Council.

Done at Addis Ababa, this ---- day of ------- 2008.

Chairperson of the Environmental Council

	Project Types Subject to Environmental Impact Assessment
1.	Mine Exploration that is subject to Federal Government Permit
2.	Dam and ReserviorConstruction
3.	Irrigation Development
4.	• Construction of Roads (Design Standard DS1, DS2 and DS3) with a traffic
5.	Taking Fish from Lakes on a commercial Scale
6.	Horticulture and Floriculture Development for export
7.	Textile Factory
8.	Tannery

9.	Sugar Refinery
10.	Cement Factory
11.	Tyre Factory with Production Capacity of 15 000 Kg/day or more
12.	Construction of urban and industrial waste disposal facility
13.	Paper Factory
14.	Abattoir Construction with Slaughtering Capacity of 10 000/Year or more
15.	Hospital Construction
16.	Basic Chemicals and Chemical Products Manufacturing Factory
17.	Any project plannedto be implemented in or near areas designated as
18.	Metallurgical Factory with a Daily Production Capacity of Equal or More
19.	Airport Construction
20.	Installation for the Storage of Petroleum Products with a Capacity of 25,000
21.	Establishment of Industrial Zone
22.	Condominium construction

Annex 3. Delegation of Authority provided by the Environment Protection Authority to the Ministry of Water and Energy with regards to the approval or disapproval of the implementation of projects in the water and energy sector on the basis of the review of an environment impact assessment document[5]

Article 1

Responsibilities of the Ministry of Water and Energy

1. The MoWE , in accordance with the list annexed to this document, should examine the impacts of the implementation of new development projects or substantial expansion or change of existing projects or re-development of discontinued projects and must approve or disapprove with or without preconditions and monitor the implementation of the project.

2. The MoWE must ascertain that the project proponent has not engaged any staff from the ministry or from federal or regional environment agencies and the ministry must require a signed testimony from the proponent.

3. In case very serious unforeseen issues arise after the submission of the EIA report, the MoWE must require for the EIA to be revised or redone, in order for the ministry to examine the new situation.

4. The MoWE must submit copies of EIA documents of development projects to the EPA at least every quarter.
5. The MoWE must ensure that its environmental unit has adequate capacity to implement its delegation of authority.

6. In order to accomplish the tasks under this delegation of authority the MoWE may confer with the EPA as required.

Article 2 Responsibilities of the EPA

1. In order for the MoWE to be able conduct impact studies, review of EIAs and make decisions, the EPA will prepare and provide environmental laws, standards and other necessary documents

2. The EPA will provide training and capacity building on review of EIAs to the environment unit staff of the MoWE.
3. In case the EPA considers that the decision taken by the MoWE on the EIA document is erroneous the EPA has the right to correct the error.

4. In case a project proponent is not satisfied with the decision of the MoWE on the EIA , the proponent will first address his dissatisfaction to the MoWE officials and in case the issue is not resolved the proponent can submit his case to the EPA. The EPA , after

[5] Unofficail translation from the Amharic Version, Gedion A. 2016

receiving the proponent's written complaint, will provide its decision to both the MoWE and the proponent within 15 days.

5. The EPA may take measures to enhance the implementation of this delegation of authority

6. The EPA may improve the list of development projects annexed to the delegation of Authority.

This delegation of authority will be effective on the date it is signed by the EPA and MoWE

_____ _____

Environment Protection Authority Ministry of Water and Energy

List of projects that fall under the water and energy sector as per the EIA proclamation number 299/1995

1. Dam Construction
    a. Dams over 15 meter height
    b. Reservoir size over 3 millin cubic meter
    c. Hydropower over 10MW
2. Irrigation development-Over 3000 hectares

3.Petrolium and energy sector projects

4.Storage tanks 25,000liters and over

5.Any water and energy project within 300 meters of an environmentally sensitive area.

Annex 4.Checklist for Environmental and Social Safeguards[6]

Project location

	Description of the issue:
- Is the project area in or close to -	
- densely populated area	
- cultural heritage site	
- protected area	
- wetland	
- buffer zone of protected area	
- special area for protection of biodiversity	

Environnemental impacts

	Description of the issue,
- Will project require temporary or permanent support facilities?	
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	
- Are ecosystems related to project fragile or degraded?	
- Will project cause impairment of ecological opportunities?	
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	
- Will project cause air, soil or water pollution?	
- Will project cause soil erosion and siltation?	
- Will project cause increased waste production?	
- Will project cause Hazardous Waste production?	
- Will project cause threat to local ecosystems due to invasive species?	
- Will project cause Greenhouse Gas Emissions?	
- Will project cause use of pesticides?	
- Does the project encourage the use of environmentally friendly technologies?	

[6]**Adapted from United Nations Environment Program,(No Date).** *Checklist for Environmental and Social Safeguards*

- Other environmental issues, e.g. noise and traffic	

Social impacts

	Description of the issue:
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	
- Will the project cause social problems and conflicts related to land tenure and access to resources?	
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	
- Will the project affect the state of the targeted country's institutional context?	
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	
- Will the project cause technology or land use modification that may change present social and economic activities?	
- Will the project cause dislocation or involuntary resettlement of people?	
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and/or possible overloading of social infrastructure?	
- Will the project cause increased local or regional unemployment?	
- Does the project include measures to avoid forced labour and/or child labour?	
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	
- Will the project cause impairment of recreational opportunities?	
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	
- Does the project include measures to avoid corruption?	

Annex 5. **Terms of Reference** for Program Activities Requiring an ESIA (Based and adapted from Ministry of Environment and Forest,(no date). *Oromia Forested Landscape Program Environmental and Social Management Framework)*

I**. Objective of the TOR:** This section should state the scope of the ESIA in relation to the screening category and the proposed program activities. It needs to stipulate the process and the timing of the ESIA preparation and implementation stages in order to adequately address the safeguards requirements of the GoE and the World Bank/IFC.

II. Introduction and Context: The ToR needs to provide information on program activity objective, the name of the program activity proponent, the rational for conducting the ESIA, specific components of the program activity, program activity area with location map, short briefing of social and environment of settings and applicable national and international safeguard policies.

III. Location of the study area and likely major impacts: State the area involved and the boundaries of the study area for the assessment. Identify adjacent or remote areas which should be considered with respect to impacts of particular aspects of the program activity.

IV. Mission/Tasks: The ESIA study team/consultant should clearly execute the following tasks.

Task A: Description of the proposed program activity: Describe the location, size and nature of the program activity, environmental assessment category, brief description of program activity alternatives, time schedule for phasing of development (i.e. preconstruction, construction, operation/maintenance, decommissioning), and resources (finance, human, material and technology) required for the program activity, among others.

Task B: Baseline information/Biophysical and social-economic description: Describe the baseline/biophysical and socio-economic characteristics of the environment where the program activity will be implemented; and area of influence. Include information on any changes anticipated before the program activity commences.

Task C: Administrative and legal policy framework: In addition to the required administrative and institutional setup for the implementation of the program activity, this part needs to identify pertinent policies, regulations and guidelines pertinent to the study that include:

- National laws and/or regulations on environmental and social assessments;
- Regional environmental and social assessment regulations;
- Environmental and social assessment regulations of any other financing organizations involved in the program activity;
- Relevant international environmental and social agreements/conventions to which Ethiopia is a party; and
- World Bank/IFC safeguards policies.

Task D: Identification of potential impacts of the program activity: Identify all potential significant impacts that the program activity is likely to generate. Assess the impacts from changes brought about by the program activity on baseline environmental conditions as described under

Task D. The analysis should address both the positive and negative impacts of the program activity. Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits.

Task E: Propose Program activity alternatives: Alternatives extend to site, design, technology selection, construction techniques and phasing, and operating and maintenance procedures. Compare alternatives in terms of potential environmental and social impacts; capital and operating costs; suitability under local conditions; and institutional, training, and monitoring requirements.

Task F: Preparation of an Environmental and Social Management Plan (ESMP): Describe the mitigation measures for adverse environmental and social impacts, staffing/institutional and training requirements, schedules, and other necessary support services to implement the mitigating measures. Provide environmental and social protection clauses for application by contractors and consultants, if any. The ToR should state that the concerned and affected parties should agree on the proposed mitigating measures before they are included in the ESMP.

Task G: Monitoring Plan: This organizes a comprehensive plan to monitor the implementation of mitigating measures and the impacts of the program activities. It should also address an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan.

V. Qualification of the ESIA study team/Consultant: The ToR should provide clear guidance on the qualification of the ESIA study team.

VI. Duration of the ESIA Study: This should be determined according to the type of the program activity.

VII. Preparation of the final Report: The ESIA study team/consultant will produce the final report one week after receiving comments from program activity proponent and concerned stakeholders. The final report will include comments from these institutions.

VIII. Suggested Contents of the ESIA Report:

The contents of the ESIA report should contain the following elements(EPA, 2003). .

- Executive Summary
- Introduction
- Methodology
- Administrative, legal and policy requirements
- Description of program activity (need, objectives, technical details, size, location input and other relevant requirements)
- An outline of the main development alternatives
- Description of baseline information/environmental and socio-economic conditions
- An account of the prediction and assessment of each impact at all stages of the program activity cycle for each alternative
- Description of the methodology and techniques used in assessment and analysis of the program activity impacts
- Description of environmental and social impacts for program activity
- Environmental and Social Management Plan (ESMP) for the project including the proposed mitigation measures;
- Institutional responsibilities for monitoring and implementation; Summarized table for ESMP.
- Conclusions and recommendations
- References
- **Annexes**
- List of Persons/Institutions met
- List of the ESIA study team members
- Minutes of consultations

Annex 6. Suggested Template for Environmental & Social Management Plan Compliance Monitoring

A. Program Activity Information

1.1. Name of subproject proponent:

1.2. Subproject Title:

1.3. Subproject category:

1.4. Subproject location:

1.5. Reporting period:

B. Main findings of the monitoring, including feedback/grievance received from stakeholders:

C. Impacts/issues as per the ESMP of the subproject:

Issues (Potential Impact)	Mitigating Measures	Schedule / Duration of Mitigating Measures	Compliance Progress Indicator	Status of Compliance	Means of Verifications	Remarks

Factors Affecting Safeguards Compliance

D. Conclusions and recommendations:

E. Experts / team leader who prepared/approved the report

Name Sign. Date

Prepared by: 1---------- ---------- ----------
2---------- ---------- ----------3----------
---------- ---------- ----------Approved by: 1----------
---------- ----------

Ministry of Finance and Economic Cooperation

Ethiopia

Stakeholder Consultation report prepared for the Project

"Building Communities Resilience to the Impacts of Climate Change in Selected Districts of Ethiopia"

July 2016

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Acronyms

AGP:	Agricultural Growth Program
CRGE:	Climate Resilient Green Economy
CSA:	Central Statistics Agency
DRC:	Disaster Risk Commission
MoANR:	Ministry of Agriculture and Natural Resources
MoEFCC:	Ministry of Environment Forest and Climate Change
MoFEC:	Ministry of Finance and Economic Development
MoWIE:	Ministry of Water, Irrigation and Electricity
MOLF:	Ministry of Livestock and Fisheries
MSE:	Micro and Small Scale Enterprises
NGO:	Non-Governmental Organization
WOFED:	Woreda Finance and Economic Development Office

1. Introduction

The proposed project mainly targets rural communities living in 14 Kebeles in 6 Woredas (Districts) within 5 administrative regions. Despite the existence of high surface and ground water potential for agricultural development, selected project areas were exposed to frequent drought and environmental degradation. The proposed project integrates agriculture, forestry and water resource management to enable the most vulnerable communities to adapt to more frequent drought as well introduce proven technologies and necessary infrastructure together with innovative methods that will contribute to preservation of the ecosystem. To achieve the objectives and ensure the sustainability of proposed project outcomes, involves active involvement of a large number of stakeholders, as such, community consultation and engagement was at the heart of project design.

2. Background

At the onset of project formulation, key stakeholders were identified from among government agencies, civil societies, non-government organizations, academic institutions, research centres and the private sector. To this end, this report reflects on the stakeholder consultation that was made specifically at the project areas.

In the first mission to the targeted project areas, four teams from the CRGE facility held a series of consultations with identified key stakeholders between March and mid-April 2016. The consultation was aimed at creating awareness on the project objectives, identify specific project implementing kebele administration, gather gender disaggregated baseline information and ascertain willingness and capability to perform activities required and bring about the required changes. The consultations were carried out on a standard template that is used by the CRGE Facility during the pre-design of a project proposal.

The second round of consultation was made between mid June and July 2016 and mainly focused in discussion on lack of access to basic services – problems, needs, gaps; the development of water and irrigation supply scheme and rehabilitation of the natural habitat; the implementation and management of the

various proposed activities and measures, the need for capacity and safeguards and gender. The teams conducted technical and social surveys to investigate, prioritize and recommend the most sustainable, cost effective, environmentally and user friendly technologies as well made an appraisal of proposals, technical findings and suggested interventions together with beneficiary communities and key institutions.

Representatives of beneficiary communities included elders, women, youth, farmers, and representatives of cooperative and woman association as well local leaders. Grass root level development agents, water and irrigation experts, extension workers, and experts assigned from woreda Office of Agricultural and Office of Water Resources were also actively engaged in the process.

3. Brief Overview of key Stakeholders[1]

Office of Water resources, Energy and Irrigation is authorized, among others to oversee the development of water supply at the woreda level. The office of agriculture and rural development coordinate the integrated agriculture and natural resource development activities, including rehabilitation of degraded lands as well as development of small-scale irrigation. At the Kebele Administration level, the office has a minimum of three development agents, which are responsible for the day-to-day follow-up of the agriculture, livestock and natural resource based activities.

Food Security and Disaster Prevention and Preparedness Office oversee the overall organization and guidance towards the functioning of disaster risk management. Office of Education has the mandate to run formal and non-formal education programmes. Provision of primary health care (health posts and health centres) among others, is the main responsibility of Office of Health.

The task of coordinating, organizing and empowering Micro and Small Enterprises (MSEs) is the responsibility of the Office of MSE. The office organizes interested groups in different production and processing works and provides trainings in business and related field. It also facilitates the acquisition of

[1] There might be minor variation in structures and naming of government organization from region to region.

production sites, market outlets and financial assistance from micro credit organizations.

Woreda Finance and Economic Development Office (WoFED) is responsible for budget planning, consolidation of sector offices' work plans and collecting revenue mainly in the form of taxes, among others. Micro credit institutions are the responsible entities for allocation of the necessary credits for approved private and MSEs.

4. Stakeholder Consultations

4.1 Regional Meetings

A regional level meeting was conducted in the City of Adama from May the 24th through the 27th of 2016. One of the agenda topics in the meeting was to also conduct a stakeholders meeting on the 24th of May 2016 on the proposed *"Building Communities Resilience to the Impacts of Climate Change in Selected Districts of Ethiopia"* project. Participants from all nine regional bureaus and finance bureaus including experts from the federal level project focus Ministers – (MoANR, MoWIE, MoLF, MEFCC) were present.

Figure 1 Regional level meeting, Oromia Region

Team members explained on project objectives, gave details on components of the proposal and discussed issues raised. Stakeholders were also informed that data was used from the Central Statistics Agency (CSA) and the Disaster Risk

Commission (DRC) to impartially select Woredas based on its growing vulnerability to climate change and the potential for the availability of water and access to market conditions for project viability. These being the priority selection criterion, it was further discussed that further parameters such as the Woreda Agro-Ecological Zone, the livelihood and Socio-Economic status of the Woreda was used as a second level tier to identify the Woredas.

Figure 2 Participants reflecting their opinion on the project design, Oromia Region

4.2 Woreda Level Meetings

At woreda level meetings, key local stakeholders such as representatives of the Food Security and Disaster Prevention Desk, the Agricultural and Rural Development Coordination Office, the Office of Health, the Office of Education, the Office of Finance and Economic Development, the Office of Water resources Development and Small Enterprise Development and Micro-financing institutes were present. After providing detail descriptions on the proposed project, discussion were made on topics raised from participants and explanations were provided for questions raised, see Fig 1. As an outcome from these meetings, the consultation yielded in the Woreda officials selecting two Kebeles (the smallest administrative units) per Woreda to implement the proposed project. The consultations were carried out with designated key focal persons vis a vis Women's Affairs, Water Bureau Desk, Woreda Administrator and the Woreda Agricultural Bureau.

Figure 3 Discussions being conducted at the SNNP Woreda Office

4.3 Kebele Level Consultations

Similarly, field visits were also made to the selected project Kebeles where the proposed project activities are to be carried out. General assessment have been made at the local level to understand the capacity of government institutions to provide support to communities and households and also identify local adaptive strategies, bio-physical characteristics to maximize opportunities for livelihood diversification and mainstreaming planning and risk management at the local level. Women and other marginalized groups were key to the consultation on the activities proposed and the design thereof. The discussion identified household level capacity needs as the main barrier to the communities' adaptation efforts followed by lack of provision of appropriate instruments and infrastructure. The consultations conducted were fundamentally important to incorporate gender sensitive approaches into the project design so to ensure women can participate equally and actively alongside men in the proposed project activities for a sustainable exit strategy.

Figure 4 Community Consultations being conducted in the Harari Region

4.3.1 Community consultation on Water Supply infrastructures

Consultations focusing on water supply infrastructures for potable use and to irrigate land were conducted with the community at the selected Kebeles, where the project is to be implemented. Topics for discussion included safe drinking water supply, irrigation water sources, problems on water schemes management, operation and maintenance, spare-parts, identification of alternatives water sources, and hygiene and sanitation and community's future need.

Figure 5 Environmental Degradation, Oromia Region

Participants noted that the poorest and most disadvantaged households and individuals, especially women, in all regions are less likely to access functioning water supply services of adequate quality and close proximity, either within their communities or in education and health facilities, see Fig 4. Further, it was mentioned that earlier attempts to install diesel powered water supply for potable and irrigation use systems that require regular maintenance, fuel and finance and that to be financed by some of the poorest in the community has been noted as the main barrier for such schemes.

Figure 6 Women waiting their turns to fetch water, Diredawa Administrative Council

Participants emphasized the need for capacity building within the community to accommodate community preferences, enhancing community involvement and commitment to ensure ownership and provision of continued support during and after project life span. They also stressed that proper community engagement from outset is paramount to help ensure the success, viability, and sustainability of infrastructures implemented. Lessons learnt from previous projects such as the third Water Supply and Sanitation Project and one One-WASH was also shared. Particular need for application sought include empowering women as caretakers of built infrastructures.

Figure 7 Functional water supply scheme, Amhara Region

Despite the absence of explanatory documents in some project areas about existing water sources and construction history, community members provide guidance for marking location of water supply sources, detail information on history, seasonal fluctuation, year of construction, etc. and were able to fill data gap and minimize survey time.

Overall, through the active involvement of target communities and other stakeholders, the existing domestic and irrigation water supply systems have been visited and the operation, maintenance and management practices in all project areas have been noted. Access and functionality of existing water supply schemes, type of water sources available and types of technologies being used and information on existing infrastructure in the woreda and particularly in selected project areas were also gathered. Community awareness about disaster risk management system and actors is poor. There are various community-based organizations, which are focused on helping each other in irrigation and also engaged in saving and credit service. NGOs in the area are involved in assisting the establishment of cooperatives, awareness creation on climate change and saving and credit service.

5. Impact on Sustainability

Planned activities are integral part of their organizational missions and most accord high priority to the intended interventions. Stakeholders have the organizational structure and institutional capacity to provide the required support and scale up project achievements to other KAs. These ensure proper implementation and sustainability of proposed interventions during and after the project period.

Stakeholder consultation has strengthened sense of ownership by beneficiary local communities and other stakeholders. Stakeholders' direct involvement in survey and appraisal of proposal, technical finding and suggested interventions have also helped alignment of project activities with community needs. Further, it has raised awareness of existing situations and has provided the opportunity for better understanding of project interventions as well strengthened willingness to commitment

List of Annexes

Annex I - List of Regional Level Participants – Adama Workshop

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1.	Belaynesh Birhnu	Ministry of WIE	yulbel_2000@ya...	[signature]	[signature]	[signature]	[signature]
2	Addisbirhan H/Gebrea	MUDH	newlightpawer@gma...	[signature]	[signature]	[signature]	[signature]
3	Eyob Amerga	"	eamerga@yahoo.com	[signature]	[signature]	[signature]	[signature]
4	Seyoum Kelemework	EEFRI	seyoum99@yahoo.com	[signature]	[signature]	[signature]	[signature]
5	Alemu Yahu Tesi (driver)	→		[signature]	[signature]	[signature]	[signature]
6	Tirhas mebrahtu	MEFCC	tremeb1@yah...	[signature]	[signature]	[signature]	[signature]
7	Amir oumer	MEFCC	oumer.amir900@...	[signature]	[signature]	[signature]	[signature]
8	Asnake Ayenew	MEFCC	asna.ayenew@yah...	[signature]	[signature]	[signature]	[signature]
9	Hassman Belay (driver)	MEFCC	hassan_belay@yo...	[signature]	[signature]	[signature]	[signature]
10	Agefe negash (driver)	MOUWE	— — -	[signature]	[signature]	[signature]	[signature]
11	Berhanu Assefa (Driver)	MOANR	berhanuassefa86@...	[signature]	[signature]	[signature]	[signature]
12	Mulugeta Chor	MOANR	mulugeta.addam@gm...	[signature]	[signature]	[signature]	[signature]
13	Solomon Demisie (driver)	MOANR (Driver)		[signature]	[signature]	[signature]	[signature]

13

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Ketema Tesema	D.D. Municipality (F.P)	ketesema D Y.com				
2	Habtamu Gefachew	D.D. Agri. office. Biya[illegible]	habtamugefachew[illegible]				
3	Elias Aliyi	D.D. Agri office (Reigio[illegible]	elias.aliyi@yahoo.com				
4	Abdulaziz Ahmed	D.D Agri office(whi					
5	Endalew Asefa	D.D Agri office(AIC)					
6	Taju- Abader.	D.D. Agri. Gelt[illegible]. woreda					
7	Dere[illegible] Abit	D.D EPA					
8	Andualem Tefere	D.D EPA					
9	Mesfin Eshete	D.D EPA					
10	Dilu Debebe	D.D F.Office					
15	Aregash Serbesa	D.D C.m.S.B	0927802376				

11

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Berihun mulat Abera	North wallo woreda Finance wadila	0914064525	[signature]	[signature]	[signature]	[signature]
2	Worku Haile Ambaw	Bahir Dar BOA	workuhaile@yahoo.com 0918014477	[signature]	[signature]	[signature]	[signature]
3	Temesgen Mulugetam	B/dar BoA	temm2001@yahoo.com	[signature]	[signature]	[signature]	[signature]
4	Abubeker Getanel Addisu	Tent Wmd	0914353349	[signature]	[signature]	[signature]	[signature]
5	Belete Mersha/Accountant	Enebsie sar midre/	0910794795	[signature]	[signature]	[signature]	[signature]
6	Mitiku Mulu	Amhara/Tach Gayint	0918147916	[signature]	[signature]	[signature]	[signature]
7	Tiruye Ali	Amhara/dawunt	0913 8776 88	[signature]	[signature]	[signature]	[signature]
8	Demelash Tadesse/Acc	Enebsie sarmidre	0920252521	[signature]	[signature]	[signature]	[signature]
9	Wobnise mengist	Enarge Enawga	0921284812	[signature]	[signature]	[signature]	[signature]
10	Hailu Melese	North wollo Saiynt	0914298792	[signature]	[signature]	[signature]	[signature]
11	Asefa Getahun	North " Mekdela	0914067688	[signature]	[signature]	[signature]	[signature]
12	Estifanos Terkay	Dessie city Ad./Accou	0914338067	[signature]	[signature]	[signature]	[signature]
14	Wondifraw Assefa	→ →	wondifrawassefa20@gmail.com	[signature]	[signature]	[signature]	[signature]
15	Bikis Birara	Sawla Gonder/Andabet	0943388418	[signature]	[signature]	[signature]	[signature]
16	mesafit yismaw	Amhara Lifayint/worda/Acc	0918196567	[signature]	[signature]	[signature]	[signature]
17	Abut Berimun (Driver)	Amhara BoA	0918 083535	[signature]	[signature]	[signature]	[signature]

16

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Kinfe Birhane	Afar Regional EPA focal	kinf2014@gmail.com	[illegible]	[illegible]	[illegible]	[illegible]
2	Biniyam Gulilat	Afar Region Amiber Wored (focal)		[illegible]	[illegible]	[illegible]	[illegible]
3	Fentaw Abate	Afar Konaba focal		[illegible]	[illegible]	[illegible]	[illegible]
4	Mohammed Kedir	Afar Konebe Accounta	0920703117	[illegible]	[illegible]	[illegible]	[illegible]
5	Amanuel Eshetu	Afar Yalo Accountant	0914738257	[illegible]	[illegible]	[illegible]	[illegible]
6	Birhan Temene	Afar Yalo focal person	08fbirhaniemene@	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]				
7	Mohammed Yesuf	Afar Abigen		[illegible]	[illegible]	[illegible]	[illegible]

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Etoh Berhe	BoARD - Tigray	etobberhe...	[signature]	[signature]	[signature]	[signature]
2	Berihu Hlmichael	BOARD - Tigray	—	[signature]	[signature]	[signature]	[signature]
3	Gebremeskel Negash	BOARD "	gebremskel23...	[signature]	[signature]	[signature]	[signature]
4	Hindhafti moreda	WBOFED "	—	[signature]	[signature]	[signature]	[signature]
5	Dagnew Kalayu	WOARD - Tigray	dagnewkal...	X	[signature]	[signature]	[signature]
6	~~[illegible]~~						

5 [signature]

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Ased boki	Min of Agri	Asedboki@Yahoo.com	[signature]	[signature]	[signature]	[signature]
2	Jemal Nesru	Agri. Deou /F.p/	Cree2075@gm	[signature]	[signature]	[signature]	[signature]
3	Solomon Tikahun	~~Sof~~ Agri Harer. Accountant	SolTila@Yahoo.com	[signature]	[signature]	[signature]	[signature]
4.	Fikrese/assle kebede	sofi woreda Agri (NR) (Focal person)	fkebede65@gmail.com	[signature]	[signature]	[signature]	[signature]
~~5~~							
5	Sami Bakri	HEPA	Samtoken@gmail	[signature]	[signature]	[signature]	[signature]
6	Tadesse Beyene	Harar Municipal	tadessebeyene74@gm	[signature]	[signature]	[signature]	[signature]

6 [signature]

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Ahmed Hassan	Environment forest	leenbo2012@gmail				
2	Farhan Mohamoud Ahmed	Agriculture & Natural Resource	farhanbillag@gmail				
3	Daniel Mamo	Agric & Nat. Re	daniel mamo@hot.				
4	Abdirahman Abdulahi	Jijiga woreda (finance)	0911-05 32 85				
5	Teshome Alemu Robi	Jig-Jiga woreda Gibrn Food	0921241333				
6	Hamdi Abdillahi	Somali Envtal protectio	hamdicanole@gmail.				
7	NASRI Ahmed	Somali Region	Nasrijamo@gmail				
8	Guled Tayib	Urban develop	guleed-230@hotm				
9	faysal farah	Urban development finance Fund AE	Nasris6000@hotmail.com				

Attendance sheet for Adaptation fund consultation workshop, Adama

s.no	Name	Organization Region/woreda	email address	Tuesday 24/05/16		Wednsday 25/05/16	
				morning	Afternoon	morning	Afternoon
1	Gmesket werdu	TIGRAY/Adwa/focal	-				
2	G/michael G/Yesus	Tigray/Adwa/Finance	Gmichael gyesus@gmail.com				
	G/her Kinfe	HAwzen, Agriculture					
	Birhane Zeru	Hintalo wajrat, CRGE focal forest					
	T/birhan G/Tsadik	Shiree Kesama (Acount)	–				
	Kebrom Bereke	Shire (Sanitation & B/A)	–				
	Kidane G/medhin	HAWZEN FINONIC	–				
	Destalem Mesfin	Tahtay maichew CRGE focal	Destalemm84@gmail				
	HAGOS G/mariam	" " Accountant	-				
	Samuel Kebede	E/Alage Accountant (plan & finance)	-				
	Misguss Tekle	E/Alaje CRGE focal/Agricul	Misguss tekle24@				
	Kahsu Tsegay	H/Endeselasie/Finance coworker	Accountant				
	Berhane Belay	Regional BOARD	berebelay8@gmail.com				
	Tsegazeab H/mariam	Mizan finance officer	haitsegazeab@yahoo				
15	Godefa G/her	Mizana CRGE focal	gadefag.ler@gm				

15 Shimelis

Annex II - List of Regional/Woreda/Kebele Level Participants

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

No	Name of Participant/ስም	Organization/ መሥሪያ ቤት	Ttile	Email Address/ኢሜይል	Cell Phone/ሞልክ	Signature ፊርማ
1	Dida Tarsu	[illegible]			[illegible]	
2	Mekdes Taye	Water [illegible]			[illegible]	
3	Gezahegn Tadesse	DPPD			0910926589	
4	Adane Tedesse	Educ. Offi			0910476805	

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

o	Name of Participant/ስም	Organization/ መሥሪያ ቤት	Ttile	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature /ፊርማ
	Galgalo Kario	A/T/Dandi	B/B/Hogganaa	0916598137		[signature]
	DIBA GUFU	PDO	NaRM Team Leader	c	0911969200	[signature]
	Abdela Mustefa	H/Office	B/B Hogganaa	-	0913147577	[signature]
	Tefera Anega	MoWIE	CDM expert	tefeeanega@yahoo[illegible]	0911771891	[signature]
	Mokonnin Abbebe	Jalliisa	Hogganaa	~~0916851828~~	0916851828	[signature]
	Taapi Waaniya	P.D.O	Aladeemsa		0913419851	[signature]
	Mitiku Tadesse	Add, officer	officer		0910015663	[signature]

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

No	Name of Participant/ስም	Organization/መሥሪያ ቤት	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature /ፊርማ
1	Radi Ayub	Envt protection Authority	radimuu556@yahoo.	0912729272	[signature]
2	Jefersufian	[illegible]	jefersufian@	0912158481	[signature]
3	ATHAM MOHAMMED	BOFED	Yahoo.Com	0911156189	[signature]
4	Ebsa Mustefa	Env.Stmen/minerals/energy	ebsa4.Com	0921169990	[signature]
5	Mohammed Rahmeto	BOFED	Rahmeto_m@yahoo.com	0911944962	[signature]

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

S.No	Name of Participant/ስም	Organization/መሥሪያ ቤት	Email Address/ኢሜይል	Cell Phone/ስልክ	Signatur /ፊርማ
1.	Nesredin Ahmed	Sofi Wil Agri. office	(Head)	0913387025	
2.	Ahmed Siraj	>>	Expert	0913844373	
3	Radi Ayub	Env't protection Author	radiayub5566@yahoo.com	0912729272	
4	Mohammed Rahmeto	Harari BOFED	Rahmeto_m@yahoo.com	0911944962	
5	Ebsa Mustefa	Investment/mines/energy	ebsa@yahoo.com	0921169990	
6.	Bereket Eshete	Oromia, Kiros.	-	0935662581	

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

S.No	Name of Participant/ስም	Organization/መሥሪያ ቤት	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature ፊርማ
1	Abinet Ketema	Pasturalist office		0935605052	
2	Suedik Ahmed	Rural Land Administration & Use Protection office		0913710351	
3.	Salahadin Ahmed	Pasturalist office		0920903686	
4	Abrahim Aliyi	Irrigation office		0913907722	
5	Worku Siyum	Pasturalist office			
6	Tamene Ishete	Pasturalist office		0941318952	
7					

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

ıue: ቦታ Mareko Wereda

lo	Name of Participant/ስም	Organization/ መሥሪያ ቤት	Ttile	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature /ፊርማ
	Deselegn lambebo	BoFED, SNNP	Prog. Coord	desalegnlambebo775@yahoo.com	0920274091	
2	Mulugeta Gerriso	Mareko Education office	devt Expert	[illegible]	0913425257	
3	Abaynesh Mira	Mareko Resource	offis head		0933354567	
4	Afework Getachew	Mareko Trad Ind	office head	—	0910169260	
5	[illegible]	Mareko finance	Popo & Devt	[illegible]@gmail.com	0910158942	
2	Fettu Nordefa	Education	Head office		0916839867	
t	Bochera Endale	Health	plan, M and E	bomehoro@gmail.	0911356188	
8	Nasir Bika	F/E/D/Sc	Ethics		0916296133	
1	GIRMA LERE	(Forest) [illegible]	offis Head		0910437019	
0	Senait Hailu	[illegible]	offis head		0916572014	
1	Aboset Tena	[illegible]	Office head	Abuyetena@gmail	0910038517	
12	Tesfaye Girma	Agriculture office	plan, M & Eval	michgirma@gmail.com	0945904353	
3	Mohammed Badeke	Adminst.	office Head		0913801826	
4	Musema Unoro	W. Health office	Vice head of file	[illegible]@gmail.com	0924058466	
5	Awal Zeyne	F/E/D/ office	officer		0946965023	
6	Weliyu Jemal	[illegible]	Vice head		0913760914	
7	Dumer Gemechu	[illegible]	[illegible]		0949605261	
18	Fitsum Woubshet	Finance	[illegible]	fitsumwubshet@yahoo.com	0911068515	

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Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

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S.No	Name of Participant/ስም	Organization/ መሥሪያ ቤት	Ttile	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature /ፊርማ
1	Mensur Anacko	ony/water/		mensurzeleke@yahoo.com	0916072643	[signature]
2	desalegn lambebo	BoFED, SNNP	Prog. Coord	desalegnlambebo225@yahoo.com	0920274091	[signature]
3	Tefera Arega	MoWIE	comm. expert	teferaarega@yahoo.com	0911771981	[signature]
4	Alugna Nemera	MoFEC	M&E Specialist	Alugna.nemera@yahoo.com	0911485305	[signature]
5	Yasin Urgessa	F.E.D.	EDOfficer	—	0911548452	[signature]
6	Abera Jemal	Education	Plan co.pro	–	0913866601	[signature]
7	Bediru Dubeta	[illegible]	[illegible]	–	0911038681	[signature]
8	ALEMU TOMBISO	[illegible]	Chief	alemutombiso@gmail	0911064806	[signature]
	Asrat Adem	[illegible]	[illegible]		0911854621	[signature]
10	Haruna Ahmed	[illegible]	[illegible]		0911532258	[signature]
11	AYANO Wosacho	〃	Plan & M&E	www.ayanawera	0916418884	[signature]
12	[illegible]	[illegible]	[illegible]		0935392148	[signature]
13	[illegible]	[illegible]	[illegible]		0922880323	[signature]
14	[illegible]	[illegible]	[illegible]		0916362602	[signature]
15	[illegible]	[illegible]	[illegible]		0912153052	[signature]
16	[illegible]	ወ/ሴ/ህ/ጉ	ወ/ሴ/ህ/ጉ		0926122358	[signature]
17	[illegible]	[illegible]	[illegible]		0916693459	[signature]
18	[illegible]	[illegible]	ሊቀመንበር		0926612214	[signature]
19	[illegible]	[illegible]	[illegible]		0916839862	[signature]
20	[illegible]				0923650549	[signature]
21	[illegible]	[illegible]	[illegible]		0916296140	[signature]
22	[illegible]	[illegible]	[illegible]		0934762362	[signature]
23	[illegible]	[illegible]	[illegible]		0927018931	[signature]
24	[illegible]	[illegible]	[illegible]		0916478318	[signature]

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

Meeting with selected Regions/Woredas/Kebles for the Adaptation Fund

List of Participant

.No	Name of Participant/ስም	Organization/ መሥሪያ ቤት	Ttile	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature /ፊርማ
1	Etana Gobuyyoo	W/Admin Agriculture	hed			
2	Tibeso Hedato	Agrictare	vice head		0911364615	[signature]
3	Hussen Aman	"	Agronomy Expert		0910011003	[signature]
4	Kedisa Beriso	Road	head		0910953480	[signature]
5	Tsegaye Dabai	Livestock & fish Dev't	head		0913307893	[signature]
6	Nura Safewo	Small Interprise Organization	head		0983283661	[signature]
7	Jemal Abas	Fin. & eco. dev't	head		0913458790	[signature]
8	Abiti Gansse	Waiccoo fonmi	head		0911334601	[signature]
9	Awel Tamir	DPPO	head		0910953691	[signature]
10	Mifta Usena	Fin & Eco. Dev't	oate officer		0910766890	[signature]
11	Jamaal Dhugo	Jallisii	Team leader		0913331961	[signature]
12	MohamedNur Kedir	Livestock office	expert		0983497726	[signature]
13	Kemal Bonso	Road Authority	Expert		0912812947	[signature]
14	Abera Jemaye	Agri office	process Owner		0913635578	[signature]
15	Daniel Gemedi	Education	Team leder		0911080974	[signature]
16	Sisay Gemechu	Rur. land En	Team leader		0911542682	[signature]
					0921105868	[signature]

Ministry of Finance and Economic Cooperation (MoFEC)

CRGE Facility

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S.No	Name of Participant/ስም	Organization/መሥሪያ ቤት	Email Address/ኢሜይል	Cell Phone/ስልክ	Signature ፊርማ
1	Teshome Alemu	LCRDO	tesh.alemu2008@gmail.com	0921241333	[illegible]
2	DR Asunkeli Gelek	" "		0915734655	[illegible]
3	Abdifateh Mowlid	"	A7oy-47aho@hotmail.com	0915102264	[illegible]
4	Mahammed Ibrahim Muse	"	0924930313 [illegible]	0915102264	[illegible]
5	Ali Abdilahi	"	0915748129	[illegible] 13	[illegible]
6	Isse Abdi muhumed	"	0915053156	0915053156	[illegible]
7	Guled Eman Geled	SRBE BoFED	0947287712	guledeman8[illegible]	[illegible]