E4574

The Federal Democratic Republic of Ethiopia

Ministry of Agriculture

Regional Pastoral Livelihoods Resilience Project (RPLRP)

Environmental and Social Management Framework (ESMF)

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Acronyms

AGP	Agricultural Growth Program
ASAL	Arid and Semi Arid Land
BMP	Best Management Practices
BoA	Bureau of Agriculture
BoPA	Bureau of Pastoral Affair
BoPAD	Bureau of Pastoral and Agricultural Development
CAHWs	Community Animal Health Workers
CBO	Community Based Organization
COD	Chemical Oxygen Demand
CPP	Country Program Paper
CRC	Compensation and Resettlement Committee
DA	Development agent
DRSLP	Drought Resilience and Sustainable Livelihoods program
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
EPLAUA	Environmental Protection, Land Administration and Use Authority
ESMF	Environmental and Social Management Frame Work
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESSF	Environmental and Social Screening Form
GoE	Government of Ethiopia
FPCUs	Federal Project Coordination Units
HoA	Horn of Africa
IAs	Implementing Agencies
IGAD	Intergovernmental Authority for Development
IPMP	Integrated Pest Management Plan
KDCs	Kebele Development Committees
KPCRC	Kebele Physical Cultural Resources Committee
LCRDB	Livestock, Crop and Rural Development Bureau
MoA	Ministry of Agriculture
MST	Mobile Satellite Team
NGO	None Government Organization
OVIs	Objectively Verifiable Indicators
PAD	Project Appraisal Document
PAPs	Project Affected Peoples
PCDP	Pastoral Community Development Program
PDP	Pastoral Development Bureau
PIC	Prior Informed Consent
PIM	Program Implementation Manual
PMP	Pest Management Plan
PSNP	Productive Safety Net Program

PVC	Property Valuation committee
RAP	Resettlement Action Plan
RLF	Rural Livelihood Fund
RPCUs	Regional Project Coordination Units
RPF	Resettlement Policy Framework
RPLRP	Regional Pastoral Livelihood Resilience Project
RPLRP-FCU	Regional Pastoral Livelihood Resilience Project Federal Coordination Unit
RPLRP RSC	Regional Pastoral Livelihood Resilience Project Regional Steering Committee
RPLRP RTC	Regional Pastoral Livelihood Resilience Project Regional Technical Committee
RPLRP WSC	Regional Pastoral Livelihood Resilience Project Woreda Steering Committee
RPLRP WSC	Regional Pastoral Livelihood Resilience Project Woreda Technical Committee
RUSACOO	Rural Saving and Credit Cooperatives
SA	Social Assessment
SACOO	Saving and Credit Cooperatives
SKDC	Sub-Kebele development Committee
SLM	Sustainable Land Management
SNNPR	Southern Nations and Nationalities People Region
SSA	Social Screening Form
TOR	Terms of Reference
WAT	Woreda Appraisal Team
WDC	Woreda Development Committee
WOFED	Woreda Office of Finance and Economic development
WOPD	Woreda Office of Pastoral Development

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Executive Summary

Introduction

The "Regional Pastoral Livelihood Resilience Project (RPLRP)" is to enhance resilience to external shocks with particular focus on the Arid and Semiarid land (ASAL) communities in Ethiopia by implementing community investment and rural livelihood subprojects. To ensure that adverse environmental and social impacts are avoided or appropriately mitigated and compensated for when implementing the project, this Environmental and Social Management Framework (ESMF) is developed. The ESMF details agreed policies, guidelines and procedures to be integrated into the implementation of the project in selected Woredas and Kebeles of the project regions. The proper implementation of the ESMF ensures compliance with applicable laws and regulations of the Government of Ethiopia (GoE) as well as relevant World Bank operational policies and procedures.

In addition to this ESMF, separate Resettlement Policy Framework (RPF) & enhanced Social Assessment (SA) documents have been prepared to deal with specific concerns related to land acquisition, property losses, restriction of access to natural resources and other social issues such as inclusion or exclusion of vulnerable and historically under-served communities and peoples.

Since the physical environment and the project nature of RPLRP is similar to that of Pastoral Community Development Project (PCDP - III) in Ethiopia, the ESMF prepared for PCDP-III is adapted and contextualized when the ESMF of RPLRP is prepared. The ESMF of (Sustainable Land Management Phase 2) SLM-2 and Agricultural Growth Project (AGP) are also consulted. The preparation of this ESMF document is also done through consultation at federal, regional, woreda and community level using different session to get their prior, free and informed consent of the stakeholders including the community members involved.

Project Components

The project focus will be on natural resource management, livelihoods support, market access and early warning systems. The project will focus on building and strengthening linkages between regional and national institutions to address the issues that affect communities in the project areas. The project will be implemented in 12 districts which are Kaabong (bordering Kenya and South Sudan), Amudat, Kween, Moroto, Nakapiripirit, (bordering Kenya) and Kotido, Abim, Napak, Katakwi, Bukedea, Kumi and Amuria which have cross border activities and trans-boundary stock routes linking pastoral communities on either side of the borders. The selected project districts are more prone to prolonged droughts, water stress for animals, land degradation due to overgrazing, high density of animals and seasonal movement of animals in search for water and pasture. The areas are also characterized by civil conflicts due to sharing of natural resources. These districts have areas with the highest proportion of households owning cattle as source of livelihood. The four components are detailed below:

Component 1: Natural Resources Management

This component aims at enhancing the secure access of pastoral and agro-pastoral communities to sustainably managed natural resources. It supports three set of activities:

a. development of water resources, and the project will rehabilitate 5 small dams and construct 5 new water dams in locations accessible to pastoral communities in the project districts;
b. development of pasture and land, about 480 hectares of grazing land are expected to be rehabilitated; and
c. securing access to natural resources in the ASALs and border countries

This component will help update and refine the mapping system of shared natural resources at a regional scale, including rangelands. These maps will inform the identification of sites to develop and rehabilitate water infrastructures and rangelands.

Component 2: Market Access and Trade

As a result of civil unrest that was experienced by areas north and east of lake Kyoga between 1987 to 2006, many pastoralists and agro-pastoralists lost their animals and the livestock infrastructure such as livestock markets, laboratories, holding grounds, animal health centers, quarantine stations and slaughter slabs are in a poor state or were destroyed.

This component has three sub-components:

a. Market Support Infrastructure and Information Systems. The project has budgeted for the construction/rehabilitation of the following infrastructures: Livestock markets (10/5); border checkpoints (6/0); holding/auction grounds (5/5); slaughter facilities (5/3). Furthermore, the project will rehabilitate two regional veterinary laboratories in Moroto and Soroti and construct three satellite laboratories in Kween, Katakwi and Bukedea;

b. Marketing Support and Value Chain Development. To achieve successful market value chain in the ASALs by the project, technical studies will be undertaken to identify market products to be prompted and developed by the project; and

c. Improving Livestock Mobility and Trade in Livestock Products. The expected outcome of this sub-component is that "Policies, regulatory framework and capacity for traders enhanced". The achievement of this outcome will be measured by (a) the number of regional protocols about sanitary and phyto-sanitary standards (SPS) ratified by the three countries, and (b) the number of regulations and policies on livestock identification and traceability harmonized between the three countries.

Component 3: Livelihoods support

Investments in this component will include issues related to improved livestock productivity i.e. animal health food and feed production, breed improvement) and alternative livelihoods promotion. The component will disseminate tested and approaches and/or technologies developed through research for the dry lands by agricultural research institutes in the region. Capacity building will be carried out to enable the communities' uptake the technologies and approaches and to take advantage of the opportunities in the region that increase their resilience to climatic shocks. The component will be implemented under three key sub component namely;

i) livestock production and Health, ii) food and feed production and productivity, iii) livelihood diversification

Component 4: Pastoral Risk Management

The expected outcome of this component is that there is enhanced drought preparedness, prevention and management. The component addresses thematic areas related to: (i) early warning and response system; and (ii) risks and conflict management. The project will aim at ensuring that early warning information is readily available, timely disseminated, and understood. Strengthening structures of project teams, EWS in MAAIF, districts and other relevant Ministries to collect, analyze and disseminate information and build their capacity (personnel, training, equipment) will be funded under the project. Veterinary officers and community animal health workers will be trained and equipped with bicycles and motorcycles to collect meteorological data.

Component 5: Project Management and Institutional Support

This component will focus on all aspects related to overall project management and institutional strengthening for drought resilience at national and regional levels. The component will have two subcomponents: Project Management, Monitoring, Evaluation and Learning and National and Regional Institutional Support.

Project financing

The RPLRP costs are based on an IDA allocation for an estimated budget of US$ 30 million over a five years period in the proportion of one third from the National and two thirds from the Regional IDA. The Government's contributions is expected to cover part of the operating costs, including staff related costs in RPLRP coordination and implementation, and beneficiaries contributions for the construction and operating costs of small scale infrastructures. GoU will also provide complementary funding for the salaries of all project staff at NPCU not directly hired by the project. In addition GoU will provide project office spaces at the Ministry and in the 12 Districts and will finance land acquisition for the construction of new cattle markets, check point, laboratories, water dams, holding grounds and weather information collection centers.

Environmental and Social Management Requirements

The selection, planning, design and implementation of the subprojects under RPLRP have to be consistent with the relevant national environmental and social management requirements as well as the World Bank safeguards policies applicable to the project and its subprojects. In each case, national regional, zone, Woreda Appraisal Team/MST and local community will have to be actively involved in screening, reviewing, approving, implementation and monitoring of subprojects that are identified by communities.

This ESMF identified and described in detail national environmental and social legal requirements to be considered when implementing the project. Project activities funded under the RPLRP have triggered the following World Bank Safeguard Operational Policies:

- OP 4.01 Environmental Assessment

- OP 4.04 Natural Habitats
- OP 4.09 Pest Management
- OP 4.10 Indigenous People
- OP 4.11 Physical Cultural Resources
- OP 4.12 Involuntary Resettlement
- OP 7.50 Projects on International Waterways

Potential Environmental and Social Impacts

It is expected that RPLRP will be beneficial to communities and to the environment since environmentally and socially sound natural resource management; small scale and micro irrigation water resource development and management; water development for rural water supply and for livestock; market center development; livelihood development; pasture rehabilitation and incorporation of forage crops into pastures; etc. will be implemented.

Notwithstanding the positive effects expected from the Project, the subprojects likely to be proposed under the RPLRP may have negative environmental and social as well as human health impacts mainly during construction and operation phase of the subprojects especially those subprojects related to infrastructure.. Potential negative environmental impacts are expected to be related to management of waste water, solid waste, mis-use and abuse of agrochemicals for crops and livestock, disposal of chemicals and containers, loss of vegetation, soil erosion, soil contamination, water and air pollution, salinity development, occupational safety and health issues during animal dips and in the veterinary laboratories, etc.

Potential social impacts from the subprojects may be related to (a) land acquisition, property losses and restriction from access to resources as a result of implementing the above infrastructure subprojects; (b) water use conflict (if any) between the upstream and downstream water users; (c) exclusion of vulnerable and underserved groups or women from participating in and benefiting from project interventions; (d) increase in malaria and other water born diseases; and (e) impact on physical and cultural resources.

Environmental and Social Management

The ESMF emphasizes that subproject planning should strive for plans and designs that avoid or minimize creating adverse environmental and social impacts. It also provides guidance how these could be explicitly managed. The RPLRP is a category 'B' project and sub-projects may not require a full scale environmental and social impact assessment (ESIA). However, environmental and social analysis is necessary and appropriate environmental and social management plan has to be prepared to prevent, minimize, mitigate or compensate for adverse impacts. In some cases, some subprojects may require the preparation of an ESIA that will include an Environmental and Social Management Plan (ESMP).

The ESMF under RPLRP will consist of five steps involved in the screening, environmental and social management plan (ESMP) preparation, conducting environmental and social impact assessment (ESIA), review and approval of sub-projects and interventions to be supported under the Rural Livelihood Program, and public consultation and disclosure both at woreda and region level. Quarter and annual reports should be prepared at Woreda, regional and federal levels. These quarter and annual reports should capture the experiences and lessons from

implementation of the ESMF and any other safeguards instruments. At *Woreda level*, quarter and annual report forms will be completed by the Woreda Appraisal Team/Mobile Satellite Team (WAT/MST) and sent to regional Environmental Protection, Land Administration and Use Authorities (EPLAUAs) for compilation. Regional EPLAUAs will compile and send quarter and annual ESMF implementation reports to the Federal Project Coordinating Unit (FPCU). The safeguard specialist at the FPCU will compile all regional ESMF reports for onward submission to the World Bank.

Implementation, Supervision and Monitoring

Environmental and social monitoring needs to be carried out during the construction as well as operation and maintenance of the sub-projects or identification and implementation of household interventions in order to ensure that mitigation measures are implemented, have the intended result, and that remedial measures are undertaken if mitigation measures are inadequate or the impacts have been underestimated within the environmental and social assessment (ESA).

At woreda level, the Woreda Appraisal Team/Mobile Satellite Teams -MSTs will be responsible for the day to day monitoring and reporting of feedback throughout the whole process. At the community level, communities, through their representatives, will be trained to undertake both compliance monitoring and effects monitoring. The FPCU, and Regional Project Coordination Units (RPCUs), regional Implementing Agencies (IAs) and EPLAUAs will also be responsible for the monitoring and evaluation of the implementation of the ESMF.

FPCUs and RPCUs will conduct result monitoring of all safeguard policies, including those that were not triggered. The purpose of these reviews is to support compliance with safeguard policies, to identify the emergence of any unforeseen safeguard issues, to determine lessons learnt during project implementation; to provide recommendations for improving future performance; and to provide an early warning about potential cumulative impacts.

Annual review workshops will be conducted at regional and federal level with the objectives to: assess project performance in complying with ESMF procedures, learn lessons, and improve future performance; and assess the occurrence of, and potential for, cumulative impacts due to project-funded and other development activities.

Capacity Building, Training and Technical Assistance

The implementation of project interventions will be undertaken in a decentralized fashion. Since there is safeguard implementation and monitoring capacity problem especially at woreda and community level to implement the ESMF and other safeguard instruments, the GoE staff at all levels will be provided training and skills upgrade to strengthen their capacity to carry out and report on social and environmental impact assessments for sub-projects as well as their implementation; and to ensure adequate and effective compliance and effect monitoring. Besides capacity building activities for effective implementation of the ESMF and other safeguard instruments, technical assistance will be required at regional, woreda and kebele levels. The Project will work closely with civil society, research and academia, consultancy firms and the Bank's safeguard specialists to implement all safeguards instruments.

ESMF Implementation Budget

Budget for the implementation of the ESMF and other safeguard instruments for capacity building training and general technical support has been included in this ESMF. However, budget for the implementation of specific mitigation and compliance actions such as entitlements and compensation payments have not been included here since budget for such mitigation measures can only become clearer when the nature and scope of subprojects have first been identified, and the magnitude of potential impacts have been predicted through a screening and vetting process. At this juncture, detailed budgets will be prepared and shared with the World Bank for clearance, and mitigation measures will be satisfactorily executed prior to commencement of the subproject activity on the ground.

Estimated ESMF Budget (during 5 years of project implementation)

Activities	**Budget in USD**
Training	
Awareness creation and sensitization workshop on role of ESMF for RPLRP subprojects	40.289
TOT on ESMF guidelines	359.763
Environmental and social impact assessment processes and methodologies	18.817
Annual environmental and social review workshop	106.689
Technical Assistance	
General TA	741.396
Grant Total Estimate	**1,265.953**

Disclosure

This ESMF will be disclosed in compliance with relevant Ethiopian regulations and the World Bank Operational Policies. It will be disclosed at the Infoshop of the World Bank and will also be available to any interested persons. Ministry of Agriculture will also provide copies of the respective ESIAs for disclosure at the World Bank Infoshop for public access. A 60-day disclosure period is recommended to allow ample time for all interested and affected parties to submit their comments and concern.

Summary and Concluding Remarks

The ESMF describes the proposed RPLRP project, identifies likely social and environmental impacts and proposes management measures to mitigate them during its implementation. Preliminary assessments of the potential environmental and social impacts of the RPLRP have been elaborated and the respective measures to mitigate them outlined as well. The institutional framework for operationalization of the ESMF has been defined based on the draft PIM presented by Ministry of Agriculture and specific recommendations for inclusion of some agencies that are deemed pivotal with regards to attaining meaningful inclusion of vulnerable groups and overall effective implementation of the project on the ground have also been made. For effective mainstreaming of the ESMF into the institutions, capacity building strategies have been proposed with the most key being training and recruitment of in-house Environmental Management and Social Development Specialists as a long-term and sustainable solution to Ministry of Agriculture's current limited capacity to effectively implement this ESMF. Based on the preliminary assessments as the specific locations of the subprojects are unknown at this point, overall, the impacts of the RPLRP will be of small scale, localized and of short-term

nature which can be effectively mitigated through the mitigation measures proposed and by strictly following the requirements and guidance in this ESMF.

1. Introduction

Pastoralists and agro-pastoralists of Ethiopia are estimated to be about 10 million which is 12% of 84 million people. They are herding their livestock in the arid and semi-arid lowlands that constitute about 63% of the country's land mass. These areas are prone to rainfall variability, extreme drought and flash floods. In order to avert such periodic disaster hazard, IGAD member countries and development partners have committed for a long-term investment that could bring long-lasting solutions and improve pastoralists' livelihoods in a regional context.

Based on the aforementioned fact, Ethiopia's Country Program Paper (CPP) for the "Drought Resilience and Sustainability Initiative" has been prepared with the overarching objective to improve food and nutrition security and enhance resilience to external shocks with particular focus on the ASAL communities in Ethiopia. The first phase of the Program will cover 15 Woredas in two regional States of Ethiopia, namely Afar and Somali.

The Government of Ethiopia has currently been working hard to get additional resources from the World Bank and other development partners to implement programs in ASAL communities. To this effect, the "Regional Pastoral Livelihood Resilience Project (RPLRP)" has been conceptualized and is now under preparation with the objective to enhance resilience to external shocks with particular focus on the ASAL communities in Ethiopia.

To ensure that adverse environmental and social impacts are avoided or appropriately mitigated and compensated for when implementing this Project, ESMF is developed. The ESMF details agreed policies, guidelines and procedures to be integrated into the implementation of the Project in selected Woredas and Kebeles of the project regions. The proper implementation of the ESMF ensures compliance with applicable laws and regulations of the Government of Ethiopia (GoE) as well as relevant World Bank operational policies and procedures.

1.1. Objective of the ESMF

The objective of this ESMF prepared for use under RPLRP is to ensure that adverse environmental and social impacts are avoided or appropriately mitigated and compensated for. It is also to ensure that the future community sub-projects and household based interventions to be supported by RPLRP will be carried out in an environmentally and socially sustainable manner. The ESMF is designed to ensure the application of appropriate level of environmental and social prevention and mitigation measures.

The specific objectives of this ESMF are to:

- Establish clear procedures and methodologies for integrating environmental and social planning, review, approval and implementation of RPLRP activities;
- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to RPLRP activities;
- Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF; and

- Establish the budget required to implement the ESMF requirements.

The implementation of ESMF will help to ensure that activities under the Project will (a) protect human health, (b) enhance positive environmental and social impacts, and (c) avoid, minimize or remedy negative environmental and social impacts as a result of either individual subprojects or cumulative impacts.

The ESMF provides an overview of relevant World Bank operational policies triggered by the RPLRP, and national environmental and social legal requirements and describes the planning process concerning environmental and social issues, including for screening, preparation, review, approval, implementation, and monitoring of sub-projects.

In addition to this ESMF, separate Resettlement Policy Framework (RPF) and enhanced Social Assessment (SA) documents have been prepared to deal with specific concerns related to potential land acquisition, property losses, restriction of access to natural resources and other social issues such as inclusion or exclusion of vulnerable and historically under-served communities and peoples. These two documents complement this ESMF.

1.2. Methodology used to prepare the ESMF and Consultation

Since the physical environment and the nature of RPLRP is similar to that of the pipeline Pastoral Community Development Project (PCDP - III) in Ethiopia, the ESMF prepared for PCDP is adapted and contextualized when the ESMF of RPLRP is prepared. The recently cleared ESMF of SLMP-2 and the operational ESMF for the Agricultural Growth Project (AGP) have also been consulted extensively. Lessons taken from ESMF implementation for AGP, SLMP-I and PCDP-II have been sufficiently considered when designing this ESMF especially for setting the institutional arrangement at different levels to implement the RPLRP ESMF. The PAD and the PIM of the RPLRP is consulted to set the institutional arrangement of the ESMF at different level, and also to identify environmental and social aspects of the project that have environmental and social concern. Environmental and social legal requirements both nationally relevant ones to the Project and the World Bank Safeguard policies that have been trigged have been reflected in this ESMF..

The preparation of this ESMF document is done through consultation at federal, regional, woreda and community level using different sessions to get the prior, free and informed consent of the stakeholders including the community members involved. Their views have been fully considered in developing this ESMF. The detail of the consultation processes and the stakeholders consulted are indicated in Annex 13.

2. Project Description: Components, Implementation, Arrangements and Environmental and Social Context

2.1. RPLRP Components

The proposed Project has the following five main components: (i) Natural Ressources Management; (ii) Market Access and Trade Component; (iii) Livelihood Support; (iv) Pastoral Risk Management; and (v) Project Management and Institutional Support. A brief description of the components, subcomponents and activities under each component which have environmental and social aspects is given below. For the detail description of these, please refer to the Project Appraisal Document (PAD) of the RPLRP.

Component 1: Natural Resource Management

This component will address the problems related to scarcity and management of natural resource (water and rangelands) which is recognized as a key constraint in the ASALs. The component will address this issue through the implementation of 3 sub-components, namely: (i) water resources development; (ii) sustainable land management in pastoral and agro-pastoral areas; and (iii) securing access to natural resources in the ASALs. The main activities under this component will include: refining and improving availability of national mapping of water resources uses and users; development and rehabilitation of water resources structures for crop production and to support dry season grazing reserves (micro dam, diversion weir, hand dug well, manual well tubing, etc.); construction and rehabilitation of water resources for water supply (micro dam, sand dam, community water pans, bore hole, rehabilitation and upgrading of existing water supply structures, etc.); construction of soil and water conservation structures (physical and biological soil and water conservation measures); establishment of a nursery sites; community cultivation of improved seeds (for forage linked to inputs into fodder bank and dry land forest development); construction/rehabilitation of sustainably managed fodder/seed banks; and strengthening of stakeholders capacities to manage the shared water resources.

Component 2: Market Access and Trade Component

This component will focus on demand-driven infrastructure investment packages to improve national systems for livestock marketing and trade. To address this issue, the component will finance the following subcomponents: (i) Market support infrastructure and information system; (ii) Development of Livestock Marketing support and Value Chain Development; and (iii) Improving Livestock mobility and trade in livestock and livestock products. The main activities under this component that have environmental and social aspects include: establishment/construction of market centers (primary, secondary/terminal markets) along with associated facilities like water holes (bore holes), fences, crush, loading ramps, and auction centers; refurbishing and upgrading existing quarantine systems by constructing bore holes, water supply infrastructures and provision of consumables; provision of consumables for veterinary laboratories; upgrading of existing mini-laboratories; strengthening Animal Product and by-Products Quality Control Laboratories by providing them with equipment, capacity building, etc; and upgrading of National Veterinary Laboratory Services through provision of reagents, equipment and training.

Component 3: Livelihood support

This component will address problems that are prevalent in the Horn of Africa (HoA) region, namely: (i) the low livestock production and productivity, (ii) the low coverage of public animal health delivery system in ASALs that contribute to high animal morbidity and mortality levels and, (iii) the low availability of feeds. In addition to this animal feed supply and management, low-yielding animal breeds impede livestock production and productivity. To address the above-mentioned constraints, 3 sub-components will be implemented, namely: (i) livestock production and health, (ii) food & feed production, and (iii) livelihood diversification. The main activities included under this component are: supply by the woreda to Community Animal Health Workers CAHWs (through Public private partnership (PPP) of necessary equipment (vaccines, ice boxes, ice packs, syringes)); purchase of drugs which the type it cannot be known exactly at this time; provision of thermostable vaccines, Polyvalent Foot and Mouth Disease (FMD) vaccine, New Castle Disease vaccine; development of camel vaccines (camel box, anthrax, pastorolosis) mainly dose adjustment (not manufacturing); provision of regional animal health laboratories with physical capacity (reagents, chemicals, kits) to diagnose and control the Transboundary Animal Diseases (TADs); provision/purchase of chemicals and drugs for vector borne diseases (trypanosomiasis, tick borne disease and ecto-parasites); support in different income generating menus (small ruminants fattening, poultry, apiculture, mining, milk cooperatives, fishing, etc.); and promotion and strengthening of off-farm activities (example could include eco-tourism, hides/skins production, mining, etc).

Component 4: **(Pastoral Disaster Risk Management)** and **Component 5: Project Management and Institutional Support** may not pose any significant adverse environmental and social risks during implementation. Hence, specific activities to be financed under components four and five are not described here.

This ESMF is prepared mainly to address environmental and social impacts arising from the implementation of sub-projects to be financed under Component one, Component two and Component three.. For details of the proposed activities of these components, refer to the PAD of the RPLRP.

2.2. Institutional and Implementation Arrangements

This section outlines the implementation arrangements of RPLRP as per the Project Implementation Manual (PIM). The PIM provides guidance to project management and implementation principles for implementers and partners. It is also designed to render assistance to all stakeholders at Federal, Regional, Zonal, Woreda, Kebele and community levels. The planning and implementation of the RPLRP is in a decentralized manner. Implementation of the project will rely on existing GoE structures and the implementation will be decentralized with Regional and Woreda Bureaus/Offices of Afar (BoPAD), Somali (LCRDB), Oromia (PC) and SNNPR (BoPA) assuming primary responsibility for execution of the program.

At the federal level

The Ministry of Agriculture (MoA) will be the Implementing Agency of the project with the overall responsibility for coordination and supervision. **A** Steering Committee (SC) will be established at federal level for oversight and major decision making. This Committee will

review and approve annual work plans, performance monitoring plans and quarterly and annual progress reports; oversee bi-annual joint review and implementation support missions, identify and promote implementation and adoption of best practices and policies, ensure that activities are well coordinated with other development programs and ensure that interventions are carried out and measures taken that will result in program sustainability. The federal level SC will be chaired by the State Minister for Livestock Development Sector of MoA. Membership will include Directors of Agriculture Extension, Natural Resource Management, Agricultural Marketing, Animal and Plant Regulatory, Animal Health, Livestock Production and Feed, Women's Affairs, and Planning and Programming; and a representative of the Directorate for Cooperation at the Ministry of Finance & Economic Development (MoFED); the Chairpersons of the Regional SCs or the designee of Oromia, SNNPR, Afar and Somali; the World Bank, IGAD and AfDB designees. The FPCU Coordinator will serve as secretary and coordinate the implementation of the project. It is responsible for overall coordination, planning, monitoring, and reporting on implementation performance.

In early 2009, the former federal Environmental Protection Authority (EPA) delegated safeguard review authority to seven technical line ministries, and MoA was one of them. Hence, the overall responsibility for implementing the ESMF lies on the Ministry itself. The MoA, through the FPCU, will play a leading role in ensuring that the proper implementation of the ESMF. It will ensure that the applicable GoE rules and regulations as well as World Bank Safeguard Policies and Procedures are enforced.

At the regional level

Regional Steering Committees (RSCs) will be established at the regional level. The composition of the regional SCs will include all heads of regional implementing institutions and service providers, head of the Bureau of Finance & Economic Development (BoFED), and Women's and Youth Affairs Offices. The RSCs will be chaired by the Bureau of Pastoral and Agricultural Development (BoPAD) in Afar region, the Bureau of Livestock, Crop and Rural Development (BoLCRD) in Somali region, the Bureau of Agriculture (BoA) in Southern Nations, Nationalities and Peoples Region and the Bureau of Agriculture (BoA) in Oromiya. The RSCs shall be responsible for: (i) providing overall supervision for project implementation; (ii) approving the overall annual work program and budget; and (iii) reviewing the annual implementation performance report prepared by the RPCUs in relation to key performance indicators. The RPCU Coordinators will serve as secretary and support the RSCs to function. In addition to its support to the RSCs, the RPCUs will provide implementation support to Woredas, coordinate regional functions and oversee Mobile Support Team (MST). It will also be responsible for overall coordination, planning, monitoring, and reporting on implementation performance**.** At the regional level, regional EPLAUAs will be responsible for ensuring that the implementation of the ESMF for matters that require regional support like subprojects that require special attention and concern.

Regional level technical committees (TCs) will be established to support the RPCUs in technical backstopping and supervision of lower level implementation entities; to coordinate the project implementation within their respective institutions (including institutional capacity building as appropriate); and to provide advice to the regional level steering committees on RPLRP activities

as well as to produce reports on implementation progress. Their membership will be from relevant processes of BoA, Bureaus of Pastoral Affairs, Bureaus of Water Resources Development and Bureaus/Offices of Women's Affairs. The TC will meet monthly.

At the zone level

The RPLRP Zone SC will be established and chaired by the Pastoral Affairs Department. The membership will be from all heads of zone implementing institutions and service providers and Women's and Youth Affairs Offices. The zone CU (Zone Mobile Support Team - ZMST) Coordinator will serve as secretary. The ZMST will be fully dedicated to coordination of implementation and/or technical backstopping, consolidating reports as well as financial management and reporting.

Similarly, zone level technical committees (TCs) will be established to support the RPCUs in technical backstopping and supervision of lower levels; to coordinate the project implementation within their respective institutions (including institutional capacity building as appropriate); and to provide advice to steering committees on RPLRP activities as well as to produce reports on implementation progress. Their membership will be from relevant processes of zone department of Agriculture, Pastoral Affairs, Water Resources Development and Women's Affairs. The TC will meet monthly.

At the woreda level

The RPLRP Woreda SC (WSCs) will be established at woreda level, and it will be chaired by the Woreda Administrator and members will include: Heads of Woreda Office of Agriculture -WOA (the head will serve as secretary), Woreda Office of Finance and Economic Development - WOFED, and all line offices engaged in implementation of the project. The WSCs will have oversight of the RPLRP activities within each project woreda. It will approve all sub-projects proposed by Kebeles, manage fund flows, monitor implementation, and ensure timely reporting on implementation progress. Each institution of the WSCs will also assign dedicated focal persons from their respective offices to provide technical support for the implementation of the subprojects. Focal persons will form a technical committee that meets at least on a monthly basis to plan coordinated visits to project Kebeles. Woreda level implementation structures will also include a Woreda Project Appraisal Team with membership from the Woreda Offices of Pastoral Development (WOPD), WOFED and sectoral offices but separate from the technical team discussed above (so that its members have no facilitation responsibilities under the project and can maintain a certain measure of independence) to appraise and review sub-projects, particularly from the perspective of social and environmental issues, technical soundness, gender equity, consistency with the Woreda Development Plan, compliance with rules, and any issues raised by the Community Audit and Supervision Committees as well as to check readiness of community institutions for implementation of sub-projects, and as implementation proceeds, the achievement of milestones at different stages of sub-project implementation.

In each woreda, WOPDs will coordinate the technical support. For some specialized support such as capacity building of the extension and veterinary services, market and technical analyses of livelihood opportunities, Savings and Credit Cooperatives (SACCO) promotion, and research input for adaptive research within pastoralist-research groups, preparing designs for irrigation and market center infrastructure, technical support will be managed by relevant regional bureaus

coordinated through the RPCUs. Woreda implementing agencies will be supported by project-funded MSTs.

At Kebele Level

At Kebele level, there is Kebele Development Committees (KDC) that oversees matters related to Community Level Participatory Planning and Implementation. Its functions are preparation of development plans based on community (ensuring the priorities of women and youth are considered) priorities; including consolidation and appraisal of individual plans from sub-Kebeles, seeking approval of KDP from Kebele council, follow-up with WSC for approval of Kebeles development plans and carrying out the implementation, overseeing implementation of approved activities in the plan, keeping records and preparing necessary reports, follow-up the proper utilization of the project resources, assisting in capacity building initiatives at Kebele levels. At Kebele level, the KDC is responsible for the proper implementation of the ESMF. This achieved by checking the illegibility of the subprojects from environmental and social sustainability perspective.

2.3. Sub-project Identification and Community Level Planning Process

Most activities supported by the RPLRP will be based on demand from pastoralists, their groups, associations, cooperatives, community institutions, and other private sector beneficiaries. A focus on specific value chains will channel activities toward products with identified markets.

Kebele Development Committees (KDC) – related to Community Level Participatory Planning and Implementation is responsible for the preparation of development plans based on community (ensuring the priorities of women and youth are considered) priorities; including consolidation and appraisal of individual plans from sub-Kebeles, seeking approval of Kebele Development Plan (KDP) from Kebele Council, follow-up with WSC for approval of Kebeles development plans and carrying out the implementation, overseeing implementation of approved activities in the plan, keeping records and preparing necessary reports, follow-up the proper utilization of the project resources, assisting in capacity building initiatives at Kebele levels. The Kebele planning process has three step process: (1) an initial sensitization, awareness creation and general consultations that includes prior and informed consultations on the project's modalities and rules, social mapping and gender awareness campaign and agreement on ethical principles; (2) situation analyses at the sub-Kebele level that include identification and prioritization of communities' primary development problems, development of community vision, and selection of representatives for CDP development; and (3) development of CDP at Kebele level that by aggregating CDPs from each sub-Kebele into a Kebele-wide plan.

2.4. Environmental and Social Context and Baseline

RPLRP is expected to cover 21 priority Woredas which are located in four regional states of Oromia (6 Woredas), SNNPR (4 Woredas), Afar (5 Woredas) and Somali (6 Woredas). The criteria employed to identify the targeting Woredas are: (i) adjacent to borders/marketing routes with implications for management of trans-boundary resources; (ii) preference in adapting a "cluster approach" if and when appropriate (optimize financial, logistics, impact); (iii) most

vulnerable Woredas based on key indicators of vulnerability (e.g. data/assessments on vulnerability, food insecurity, hunger, malnutrition, household incomes); (iv) proximity to roads; (v) scope and coverage: ensure complementary with other projects, and avoid overlapping with similar interventions; (vi) willingness of the community (demonstrated interest in the project interventions) and livelihoods potential (this could include potential for value chain and market engagement) are the basic ones.

Before the project implementation the baseline study will be studied thoroughly with detailing agro ecological, rainfall, temperature, growing periods, socioeconomic and biophysical environments. At this stage it is difficult to describe thoroughly the specific and detail biophysical and socioeconomic condition of the project as it is implemented at different regions and the specific locations where the subprojects are going to be implemented are not exactly known. When implementing specific subprojects in a particular area, the environmental and social baseline condition will be described in detail. However, in this ESMF report, the general description of the baseline conditions of the project regions is presented as follows

Physical environment

Generally, the physical environment of the project areas under the RPLRP is mostly arid and semi-arid intersected by several large rivers such as the Awash, Wabe-Shebelle, Omo-Gibe and Genale-Dawa. In terms of relief and soil characteristics, these areas are lowland areas less than 1,500m asl with yellow sand, yellow silt or red clay (oxidized) soils. Rainfall is erratic and the mean annual rainfall is less than 900mm and annual mean temperatures are above 18^{o}C (Bereha agro-ecological zone >22^{o}C and Weinadega agro-ecological zone 18-20^{o}C).These areas face recurrent drought.

The main geologic unit of one of the project region - the Afar Region - includes volcanic rocks of the Afar Group and sedimentary of the quaternary age. Outcrops of the Afar group which are dominantly basaltic are found exposed in many areas of the region. Sand, silt, clay and reef limestone of Holocene age cover lager part of the region. Whereas the geologic formation of the other project regions (Somali, Oromia and SNNPR) are dominated by alternating limestone, shale, anhydrite, dolomites and marl. The land surface is sandy and often coated with reddish soil and calcareous crust typical of desert area. Minerals like edible salt, gold and natural gas also occur in the region.

Biological environment

The project's area of intervention may be in Woredas where some natural habitats exist and are protected by law. These may include the Awash and Yangudi Rasa National Parks (Afar Region), Yabello Sanctuary in Borena (Oromia Region) and the Babile Wildlife Sanctuary (Somali Region). General vegetation in the selected pastoral regions is natural savanna (bushed grassland with patches of woodland), and the predominant main plant species are Acacia spp., Albizia spp., Erythrina spp., Cordia, Ficus, Belanites aegyptica, Euclea schimperi, Grewia tembensis, G. bicolor, Indigofera spicata, Commiphora, Prosopis juliflora and various species of grasses including Chloris pycnothrix, Hyparrhenia anthistiriodes, H. dregeana, Cenchrus ciliaris, Heterpogon spp., Setaria acromelaena, Aristida kenyensis, Cyondon dactylon, Panicum atrosanguineum, Microchloa kunthii, etc.

In the project regions, there are also a number of mammals, birds, reptiles, amphibians, fishes and invertebrates uniquely adapted to the arid and semi-arid conditions. Wildlife animals include lion, hyena, leopard, fox, hunting dogs, crocodiles and various types of snakes. Hunted wild animals include: Bicids, Balango, Goodir, Dabatag, Zebra, Baboon, Hippopotamus, Ostrich, Monkey and Elephant. There are also a number of birds such as, degodi lark, little winged dove, Somali short billed crombec, Jubaland weaver, little brown bustard and white winged collared dove.

Socio-economic environment

In these areas, pastoralists whose economic mainstay is livestock rearing exploit grazing land extensively, resulting in long term degradation of rangelands and encroachment by invasive weeds such as Prosopis juliflora. Feed and water supply are achieved through either constant or partial herd mobility. Overgrazing coupled with the invasion of noxious weeds may lead to displacement of indigenous plant species and biodiversity loss in pastoral areas. For instance, in the large areas of the Borena zone overexploitation of groundwater has led to dropping groundwater levels and wells running dry.

The project target population is comprised of pastoral and agro-pastoral households who depend on livestock as dominant livelihood and agro-pastoral households with small herds and flocks and who, to some extent, depend upon cropping. The population is estimated to be 12 million to 15 million. Pastoralism in Ethiopia relates to both an economic livelihood system that is based primarily on extensive livestock production, and to the characteristics of a community that is mobile and lives close to the country's borders. Pastoral communities have rich customary laws used for many centuries for political and social administration of the rangelands and their people. Building on such laws, pastoral communities have developed traditional institutions and networks that have been serving their people in solving their various economic, social and political matters. The dominant social capital or customary institutions involve social support mechanisms, natural resources management systems, social security systems, and conflict resolution systems. The project intervention areas are characterized by water shortage, frequent drought, shortage of grass/fodder, outbreak of human disease (particularly, malaria), livestock disease and gender disparities in access to productive assets are the main sources of vulnerability. Besides, they are characterized by poor infrastructure developments, very limited social services (and therefore low education and literacy levels), susceptibility to natural hazards, poor resource endowments, increasing competition for scarce resources and limited livelihood opportunities.

Although significant improvements have been achieved over the last ten years, pastoralists remain under-served in terms of basic social services. Development issues faced by pastoralists include: (i) weak government institutions and limited public participation in local decision-making processes, (ii) poor access to social services; (iii) dependence on extensive livestock production with poorly developed support services, and uneven access to markets; (iv) long-term environmental degradation; (v) vulnerability to recurring droughts exacerbated by climate change; and (vi) increasing competition for natural resource use.

The pastoralist and agro-pastoral communities are known to have complex social relations, are prone to conflicts and are located in the arid and semi-arid regions of the country where the

environment is fragile. The main factors that induce conflict include competition over resources. Recurring conflicts between ethnic groups over the use of rangelands has been common phenomenon in most pastoral areas of the country.

Cultural environment

The enhanced social assessment done for the project identified various cultural, sacred places, religious and historical heritages available in the sample project Woredas. In Argoba special woreda of Afar region, the SA identified the presence of tombstones and funeral sites that have unique and vivid artistic engraving and old-age mosques with unique early Islamic architecture. These sites are located in Medina, Gacheni, Sherifoch (Metekeleya) and Chenokebeles of the woreda. Similarly in Mesgido Kebele of Chefraworeda, a Mosque established in 1880 by Haji Amin Kebir, who is the ancestor of the residents in the area, has remained a center of religious festive and prayer.

Two project Woredas of Oromia region are endowed with different tangible and intangible cultural resources. In MaddaWalabu woreda, Madda village, which is inhabited by an agro-pastoral community, has significant importance in history of Oromo people. Traditionally, it is believed to be the home and origin of Oromo people. It has thus been serving as a center of the Oromo traditional governance. The place has also served as the center of Gumiigayyoo and the seat for a number of abbaagadaas and abbaamuuda (spiritual leaders) at the time. Even if the Islamic religion is expanding and dominating the area, still today the same ritual and gadaa ceremonies are held annually by all Oromo people from the whole ofBorana and Arsi rangeland and Northern Kenya.

Karjul is another sacred and religious place found in MaddaWalabu at 33 kms west of Bidire town. Karjul is equivalent to the monastery and religious place of Shek Hussein in eastern part of Bale administrative zone. In addition to these historical physical resources, the natural bridge under the WelmalFalls is a wonderful site for its aesthetic value.

In Liben woreda, there are 16 different sacred places where the gadaa ceremonies take place. These places are located in 10 different kebeles. They are believed to be sacred and thus protected from any intrusion by customary law and sheer respect. In addition to these places, there are a number of natural and cultural sites including waterfalls, elephant sanctuaries, natural caves and cliffs, and the endemic bird (the Liben Lark).

The report also revealed that there are historically underserved groups having their own boundary, language, identity, unique culture and practices. These groups are undeserved, very vulnerable and some groups are out casted. The above-mentioned groups in the project Woredas are different from the wider communities of the Project because they are minorities and historically disadvantaged groups.

The main sources of vulnerability identified by the Social Assessment among the assessed population include water shortage, frequent drought, shortage of grass/fodder, outbreak of human disease (particularly, malaria), livestock disease, conflict and gender disparities in access to productive assets.

Pastoralist/agro-pastoralist livelihoods systems are becoming increasingly vulnerable. All the study areas are characterized by poor infrastructure developments, very limited social services (and therefore low education and literacy levels), susceptibility to natural hazards, poor resource endowments, increasing competition for scarce resources and limited livelihood opportunities. There has also been a loss of productive assets and increasing household food insecurity due to drought, whereas high population growth and climate change are negatively affecting their resilience capacity and stretching the capacity of local institutions and customary practices cope with shocks and deal with resource management/sharing.

The pastoral areas have rich customary laws that have been used for many centuries for political and social administration of the rangelands and their people. Building on such laws, pastoral communities have developed traditional institutions and networks that have been serving their people in solving their various economic, social and political matters. The dominant social capital or customary institutions involve social support mechanisms, natural resources management systems, social security systems, and conflict resolution systems. Here it is worth to mention Gada system for the sustainable management of trees in the Oromia pastoral areas. The traditional institution is known for its democratic political and social governance rich with different customary laws to administer and manage the range resources and the population. Besides, there are various arrangements as an informal social protection mechanism. For example in Madda Walabu woreda and Liban woreda there are the system of social security/ assistance is called Hirpha, Buusaa, Gonnofaa and Dabbaree. These are systems of mutual help for households that have lost their belongings through different shocks.

The Dagu and Liela are other forms of social networking where community members share different information among the Afar and Argoba people, respectively. Somali communities tend to live in extended families, sharing resources for basic subsistence. Support for needy individuals is either obligatory (religious duty Zakat or clan obligation) or voluntary (helping others out of benevolence). These traditional relationships within the community that entirely depend on kinship ties, marriage relationship and other social obligations were most important social risk sharing mechanisms. In SNNPR an indigenous institution called 'Denb' is used to solve conflicts. In Afar and Somali region clan and religion leaders took the main responsibility to end the conflicts through norms and traditional laws.

However, pastoralists face changing contexts due to climate change, national development, and their own changing livelihoods (for example in Bale, the proportion of mobile pastoral communities to agro-pastoral communities is being reversed as pastoralist increasingly take on farming activities). As such, their social networks are also evolving and sometimes overstretched. This is mostly observed in their limited capacity to prevent conflicts. The main factors that induce conflict in the regions include competition over resources. Recurring conflicts between ethnic groups over the use of rangelands has been common phenomenon in most pastoral areas of the country.

The study team has tried to identify the potential implication of the GoE's Commune program in undertaking RPLRP project. So far, the commune program has been conducted in 18 woredas of Somali and 8 woredas of Afar. The findings from the field indicate in Oromia there was no plan for resettlement in pastoral and agro-pastoral woredas. In SNNPR, there was no resettlement

activity planned in the visited woredas. Thus, to date, there has been no adverse impact on PCDP as result of the commune program. However, the commune program may have some implications during the future implementation of the two projects because of the potential interface and the project should ensure that it has a good strategic approach to risk management and its planning process should take in to considerations the evolving social and economic changes.

Government policy: The Ethiopian Constitution recognizes the presence of different socio-cultural groups, including historically disadvantaged and underserved communities, pastoralists, and minorities, as well as their rights to socioeconomic equity and justice. In connection with institutional framework designed to ensure equity between regions, the government has set up the Ministry of Federal Affairs (MoFA). The responsibilities of this Ministry include promoting equitable development, with emphasis on delivering special support to developing regions such as Somali and Afar. According to the finding of community consultations, the communities have demonstrated deep interest and readiness to actively participate in the project from planning to implementation and monitoring stages. Moreover, as PCDP followed CDD approach the interventions of PCDP are based on the priority need of the target communities. As a result communities were aware of procedures and approach of project. Besides, community contributed both cash and in-kind for the implementation of subprojects. According to the findings of the assessment, the implementation of RPLRP design and implementation found to take into account the needs and situation of these underserved communities and vulnerable groups.

The constitution of FDRE acknowledges the equal right of men and women. But on the ground, the discrimination of and inequality of women to men have continued in the study areas in terms of property ownership, access, use and decision making over productive and reproductive assets, and participation in decision making. However, due to PCDP-2 interventions women participation in various development committees, kebele and woreda councils, and development activities had shown progress. RPLRP needs to uphold and strengthen these strategies to promote participation and benefits of pastoral and agro pastoral women.

3. Environmental and Social Management Requirements

In this section, RPLRP related national environmental and social legal requirements, and the World Bank safeguards policies that are triggered by the project are described. General gaps between the national and the World Bank policies/instruments are also presented in this section.

3.1. National Environmental and Social Management Requirements

This section describes the legal and regulatory requirements for environmental and social impact assessment and management in Ethiopia.

3.1.1. Environment

The National Constitution

Adopted in 1995, the Ethiopian Constitution provides the framework for environmental protection and management in Ethiopia. The concept of sustainable development and environmental rights are presented in Articles 43, 44, and 92 of the Constitution:

Article 43: The Right to Development identifies citizens' right to improved living standards and sustainable development and participates in national development and to be consulted with respect to policies and projects affecting their community.

Article 44: Environmental Rights stipulations that all citizens have the right to a clean and healthy environment; and those who have been displaced or whose livelihoods have been adversely affected as a result of state programs have a right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance.

Article 92: Environmental objectives state that the government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment. The design and implementation of programs neither shall not damage nor destroy the environment. Citizens also have a right to full consultation and to expression of views in the planning and implementation of environmental policies and projects that directly affect them. Government and citizens shall have the duty to protect the environment.

The Environmental Policy of Ethiopia

The environmental policy of Ethiopia, approved in 1997, is aimed at guiding sustainable social and economic development of the country through the conservation and sustainable utilization of the natural, man-made and cultural resources and the environment at large. The policy lists specific objectives encompassing wide range of environmental issues to be addressed through the adoption of the policy. It also provides overarching environmental guiding principles to be adopted to harmonize the environmental elements in sectroral, cross-sectoral and other policies. The policy clearly outlined the sectoral environmental policies, relevant to environmental management among others are: (i) Soil Husbandry and Sustainable Agriculture; (ii) Forests, Woodlands and Trees; (iii) Genetic, Species and Ecosystem Biodiversity; (iv) Water Resources; (v) Energy Resources; (vi) Human Settlement, Urban Environment and Environmental Health; and (vii) ESIA.

The National Conservation Strategy

It is enacted in 1995 and takes a holistic view of natural and cultural resources and seeks to present a coherent framework of plans, policies, and investments related to environmental sustainability. The Strategy consists of five volumes: Natural Resource Base, Policy and Strategy, Institutional Framework, Action Plan, and Compilation of Investment Program.

Biodiversity Conservation and Research Policy

The biodiversity policy was approved in 1998 and it provides policy guidance towards the effective conservation, rational development and sustainable utilization of the country's biodiversity. The policy objectives accentuate public participation in biodiversity conservation, development and utilization, and also ensure that communities share from the benefit accrued from the utilization of the genetic resources and their traditional knowledge. The policy consists of comprehensive provisions on the conservation and sustainable utilization of biodiversity, and it underlines the requirements for implementers to adopt during planning and operational phase of projects and for those projects engaged in biological resource utilization to follow ESIA procedures.

Environmental Impact Assessment Proclamation, NO. 299/2002

The Environmental Impact Assessment Proclamation was decreed in December, 2002 in order to make ESIA a mandatory procedure for projects to be undertaken by the government, public or private entities that require environmental impact analysis. The Proclamation elaborates on considerations with respect to the assessment of positive and negative impacts and states that the impact of a project shall be assessed on the basis of the size, location, nature, cumulative effect with other concurrent impacts or phenomena, trans-regional context, duration, reversibility or irreversibility or other related effects of a project. Based on directives or guidelines pursuant to this proclamation, projects will be categorized as:

- Projects that are not likely to have negative impacts, and thus do not require environmental impact assessment; and
- Projects those are likely to have negative impacts and thus require environmental impact assessment.

As per the procedures in the proclamation, a proponent is required to undertake a timely environmental impact assessment, assess the possible adverse impacts of the proposed project, and propose the means of mitigation, and shall submit the study report to the relevant body (Federal or regional EPA) for review and decision. It is also a requirement that ESIA reports be prepared by an expert that meet the requirements specified under any directive issued by the Authority (regional/federal).

The regional environmental agency in each region shall be responsible for the evaluation and authorization or any environmental impact study report and the monitoring of its implementation if the project is not subject to licensing, execution and supervision by a federal agency and if it is unlikely to produce trans-regional impact.

Environmental and Social Impact Assessment Guidelines and Directives

The former the Ministry of Environment and Forestry (formerly known as FEPA) has published series of environmental and social impact assessment guidelines for the different sectors outlining the key issues, principles, procedures and processes to be adopted and adhered to avoid and/or mitigate potentially negative environmental and social impacts during project planning, implementation and operation by government, public and private entities. Some of the guidelines are generic and applicable in different sectors and there are also sector specific guidelines prepared for key environmental and social issues to adhere during the ESIA analysis in those specific sectors.

Environmental Impact Assessment Guideline, May, 2000

The guideline provides the policy and legislative framework, the general ESIA process and key sectoral environmental issues, standards and recommendations for environmental management in key sectors such as agriculture, industry, transport, tannery, dams and reservoirs, mining, textiles, irrigation, hydropower and resettlement projects.

Environmental and Social Management Plan Preparation Guideline, Nov. 2004

The guideline provides the essential components to be covered in any environmental management plan (e.g., identified impacts, mitigation measures, monitoring, capacity building,

etc….) and structured formats for mitigation measures, monitoring and institutional arrangements.

Similar guidelines for the different sectors include the following:

- *Environmental and Social Impact Assessment Guidelines for Dams and Reservoirs, 2004*
- *Environmental Impact Assessment Guideline for Fertilizer, 2004*
- *Guidelines for Social, Environmental and Ecological Impact Assessment and Environmental Hygiene in Settlement Areas, 2004*
- *Environmental Impact Assessment Guidelines on Irrigation, 2004*
- *Integrated Environmental and Social Impact Assessment Guidelines for Livestock and Rangeland Management, 2004*
- *Environmental Impact Assessment Guideline For Mineral and Petroleum Operation Projects, December 2003*
- *Environmental Impact Assessment Guideline On Pesticides, May 2004*
- *Environmental Impact Assessment Guidelines on Road and Railway, 2004*
- *Environmental Impact Assessment Guidelines on Forestry, 2004*

Rural land Administration and Use Proclamation, No.456/2005

The main aim of the Proclamation is to conserve and develop natural resources in rural areas by promoting sustainable land use practices. In order to encourage farmers and pastoralists to implement measures to guard against soil erosion, the Proclamation introduces a Rural Land Holding Certificate, which provides a level of security of tenure. The MoA is tasked with implementing the Proclamation by providing support and co-coordinating the activities of the regional governments. Regional governments have an obligation to establish a competent organization to implement the rural land administration and land use law. Accordingly the REPAs are responsible for rural land administration. The Proclamation states that if a land, that has already been registered, is to be acquired for public works or for investment, compensation commensurate with the improvements made to the land shall be paid to the land use holder or substitute land shall be offered. The Proclamation imposes restrictions on the use of various categories of land, for example wetland areas, steep slopes, land dissected by gullies, etc.

Ethiopian Water Resources Management Policy (1999)

The overall goal of the policy is to enhance and promote all national efforts towards the efficient, equitable and optimum utilization of the available Water Resources of Ethiopia for significant socioeconomic development on sustainable basis. The policy aims to ensure access to water for everyone fairly and in a sustainable manner, protect water resources and sources, and promote cooperation for the management of river basins.

Ethiopian Water Resources Management Proclamation (Proclamation No. 197/2000)

The purpose of the Proclamation is to ensure that the water resources of the country are protected and utilized for the highest social and economic benefits for the people of Ethiopia, to follow up and supervise that they are duly conserved, ensure that harmful effects of water are prevented, and that the management of water resources is carried out properly. The Proclamation provides that all the water resources of the country are the common property of the Ethiopian people and the state.

Pesticide Registration and Control Proclamation (Proclamation No. 674/2010)
This Proclamation:

- Covers agricultural, household, public health, and industrial pesticides;
- Provides registration and control responsibilities to MoA;
- Seeks to promote safer pesticide handling and use in the country;
- Requires that all pesticides should be registered on the basis of demonstrated product effectiveness and safety for humans, non-target organisms and the environment;
- Prohibits importation of highly hazardous, severally restricted or banned pesticides (including most organochlorines); and
- Obliges that all pesticides must display labels that meet specific Ministry of Agriculture label requirements.
- The proclamation also includes requirements for consideration for acceptance, testing procedure and the content of report and information for recommendation to be filled by the researcher.

Environmental Pollution Control Proclamation, No. 300/2002
The aim of the proclamation is to control and manage possible causes of environmental pollution from hazardous substances, waste and any other forms of pollutants that pose serious environmental, social and health threats. The proclamation has important provisions on environmental standards, inspection procedures, offences and penalties, etc…. In its provision to control pollution, the proclamation states that, among others,

- No person shall pollute or cause any other person to pollute the environment by violating the relevant environmental standards
- The Authority or the relevant Regional environmental agency may take an administrative or legal measure against a person who, in violation of law, releases any pollutant to the environment.

Public Health Proclamation (200/2000)
This proclamation prohibits discharging of untreated liquid waste generated from septic tanks, seepage pits and industries into water bodies, or water convergences Prohibits the disposal of solid or liquid or any other waste in a manner which contaminates the environment or affect the health of the society, etc.

Solid Waste Management Proclamation 513/2007
The proclamation aims to promote community participation to prevent adverse impacts and enhance benefits resulting from solid waste management. It provides for preparation of solid waste management action plans by urban local governments.

A Directive Issued to Determine Projects Subject To Environmental Impact Assessment, Directive No.1/ 2008
The directive was issued to identify and list out those investment projects subject to mandatory Environmental Impact Assessment. The regions are entitled to issue similar directive to their own specific cases based on this directives. Extensive list of project types requiring ESIA are provided in this directive.

Ethiopia has ratified several international/multilateral environmental conventions and many of the principles and provisions in those conventions have been well addressed in the national environmental policies and regulations. Some of these conventions include the following:

- *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Done at Aarhus, Denmark, On 25 June 1998*
- *Cartagena Protocol onBio-Safety to the Convention on Biological Diversity*
- *Convention on Biological Diversity, Rio, 5 June, 1992*
- *Kyoto Protocol to the United Nations Framework Convention on Climate Change*
- *United Nations Convention to Combat Desertification*
- *UN Framework Convention on Climate Change*
- *Convention for the Protection of the World Cultural and Natural Heritage Paris, 23 November 1972.*

3.1.2. Social

The Ethiopian Constitution recognizes the presence of different socio-cultural groups, including historically disadvantaged and underserved communities, pastoralists, and minorities, as well as their rights to socioeconomic equity and justice.

Article 39 of the Ethiopian Constitution recognizes the rights of groups identified as "Nations, Nationalities and Peoples". They are defined as "a group of people who have or share a large measure of common culture or similar customs, mutual intelligibility of language, belief in a common or related identities, a common psychological make-up, and who inhabit an identifiable, predominantly contiguous territory." This represents some 75 out of the 80 groups who are members of the House of Federation, which is the second chamber of the Ethiopian legislature. The Constitution recognizes the rights of these Nations, Nationalities and Peoples to: self-determination, including the right to secession; speak, write and develop their own languages; express, develop and promote their cultures; preserve their history; and, self-government, which includes the right to establish institutions of government in the territory that they inhabit and equitable representation in state and Federal governments. Most of the Project target communities belong to this population group.

The Ethiopian Constitution also recognizes the rights of pastoral groups inhabiting the lowland of the country. The Constitution under *Article 40 (4)* stipulates 'Ethiopian pastoralists have a right to free land for grazing and cultivation as well as a right not to be displaced from their own lands'. The *Constitution* under *Article 41(8) also* affirms that "Ethiopian pastoralists have the right to receive fair prices for their products, that would lead to improvement in their conditions of life and to enable them to obtain an equitable share of the national wealth commensurate with their contribution. This objective shall guide the State in the formulation of economic, social and development policies." Pastoralist regions/areas recognized by the government are: Afar; Somali; Borena Zone and Fentele *Woreda* (Oromia); South Omo Zone, Bench-Maji Zone, and parts of Decha Wereda in Keffa Zone (SNNPR); and, Nuer Zone (Gambella).

Proclamations Related to Social Requirements

Proclamation 456/2005 (Rural Land Administration and Land Use)

The Proclamation addresses the right to hold and rural lands; rural land measurements, registration and holding certificate; duration of rural land use right; transfer of land use rights distribution of rural lands; rural land use restrictions; and other related miscellaneous provisions.

Proclamation 455/2005 (Expropriation Landholdings for Public Purposes & Payment of Compensation)

Expropriation of Landholdings for Public Purposes and Payment of Compensation Proclamation' was established. Prior to this, no specific legal framework existed relating to expropriation and compensation. As a result, there have been serious shortcomings in the processes associated with land expropriation, resettlement and associated compensation payments in Ethiopia. The proclamation address issues related to *Public domain Entitlement, Property laws, Land asset classification and valuation, customary laws, Procedures for expropriation, Procedures for grievance redress*

Regulation No. 135/2007 (Expropriation Landholdings for Public Purposes & Payment of Compensation)

It addresses Regulation for the payment of Compensation for property Situated on Landholdings Expropriated for public purposes. It describes the detail implementation procedures in when settling issues related to Public Domain Entitlement, Property laws, Land asset classification and valuation, customary laws, Procedures for expropriation, Procedures for grievance redress.

3.2. World Bank Environmental and Social Safeguards Policies

Project activities funded under the RPLRP have triggered the following World Bank Safeguard Operational Policies:

- OP 4.01 Environmental Assessment
- OP 4.04 Natural Habitats
- OP 4.09 Pest Management
- OP 4.10 Indigenous People
- OP 4.11 Physical Cultural Resources
- OP 4.12 Involuntary Resettlement
- OP 7.50 Projects on International Waterways

The Bank's operational policies i.e. Environmental Assessment, Pest Management, Natural Habitat, Physical and Cultural Resources, Indigenous People, and Involuntary Resettlement are addressed at subproject level, whereas OP 7.50 is addressed at the Project level.

3.3. Comparison of the World Bank and National Polices

The Bank's operational policy OP 4.01 and the Ethiopian legislation, primarily the guidelines on ESIA, are compatible as both essentially require the preparation of environmental assessments based on the nature and significance of impacts associated with a proposed development. In terms of the additional safeguard policies, there are some gaps in the Ethiopian legislation, in which case the World Bank safeguard policies remain more stringent and must be followed. See annex 15 for the comparison of the World Bank and the National applicable policies.

4. Potential Environmental and Social Impacts

Identification of impacts includes positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts, unavoidable or irreversible impacts. The impacts identified are generic to the proposed project interventions below:

Component 1: Natural Resources Development

- Water facilities to be rehabilitated in the communities of the project districts;
- New water facilities to be constructed in the communities of the project districts;
- Watersheds for the existing shared water facilities to be rehabilitated/developed in the communities of the project districts;
- Pastoral and Agro-pastoral rangelands/field demonstration schools to be established in the communities of the project districts.

Component 2: Marketing and Trade

- Livestock Markets to be rehabilitated/Construction in the communities of the project districts;
- Border Check Points to be rehabilitated/Construction in the communities of the project districts;
- Laboratories to be rehabilitated/Construction in the communities of the project districts;
- Slaughter Facilities to be rehabilitated/Construction in the communities of the project districts;
- Holding/Auction Grounds to be rehabilitated/Construction in the communities of the project districts;
- Trading routes to be demarcated;
- Grazing and strategic livestock feed reserves to be demarcated; and
- Watering points to be demarcated.

Component 3: Livelihoods Support

- Communal demonstration permanent crushes (galvanized iron) to be constructed;
- Crushes - Construction in selected sites (on average 5 per district);
- Pasture improvement (degrade range rehabilitation/ reseeding, pasture seeds scheme);
- Field demonstration plots to be established; and
- Storage Facilities in the 12 districts to be constructed

4.1 Potential Positive Impacts

It is expected that RPLRP will be beneficial to communities and to the environment since environmentally and socially sound natural resource management activities (including rangeland), small scale and micro irrigation water resource development and management, water development for rural water supply and for livestock, market center development, livelihood development, pasture rehabilitation and incorporation of forage crops into pastures; development

and compliance with grazing land management rules, etc. will be implemented. If all of these are implemented and managed properly, they will bring environmental social and economic benefits to the community.

The RPLRP is expected to have the following positive impacts:

- Infrastructure facilities are to be shared by different ethnic groups and this can help achieve peace building goals of increasing interaction and fostering cooperation;
- Better and hygienic environment for trade in livestock and livestock products will be established by the project which will be a large positive benefit to the communities and local governments;

- The implementation of the project will bring about employment opportunities for people in the community;

- The planned rehabilitation and construction of valley dams will provide sources of water for the pastoral communities which in the long run can bring about change of their lifestyles from pastoral to sedentary agriculture;

- The cattle markets once constructed will be sources of income for the local governments through collection of market dues;

- The cattle markets will also have good waste management facilities in their vicinity through the project such as toilets;

- The project plans to focus on supporting appropriate alternative income generating enterprises for the households. This has a very large positive impact in terms of socio-economic empowerment of the households and creating food security at household level;

- Demarcation of livestock routes will make control of diseases fairly easier as veterinary staff can then manage the movement of livestock in cases of livestock disease out-breaks;

- Training of local veterinary staff, Community Animal Health Workers (CAHWs), local leaders, and overall veterinary staff will enhance skills for livestock health management in the communities. Therefore, the capacity building in the project will help to develop skill for modern agriculture in the districts and the communities for better delivery of services for social and economic transformation;

- The RPLRP areas will have better information on natural resources especially range lands which will help pastoralists adapt to changing and harsh climatic risks there by minimize loss of livestock;

- Some groups in the Project area are both agriculturalists and pastoralists who keep cattle, goats, and sheep. The new facilities including water points, markets, and rehabilitation of rangelands will improve upon their pastoral livelihoods and access to market in addition to recognizing their rights to natural resources especially watering points.

- Distribution of drought tolerant crops will provide the project beneficiaries with drought tolerant crop varieties to overcome famine one of their major problems. The groups will also benefit from extension services to realize sustainable food production to feed their communities. This will all enhance the agricultural skills of the project beneficiary communities thereby enhancing their sustainable livelihoods;

- Famine is an issue among the IPs and construction of storage facilities is likely to ensure safe storage practices to avoid losses due to storage pests;

- Conflict management with particular focus on cross-border issues is likely to promote peaceful coexistence, and to eradicate the discrimination and animosity that has existed amongst pastoral communities in the project area;

- Construction of pest management facilities such as spray races and dips will enhance tick management strategies in the districts covered under RPLRP;

- Upgrading of existing regional veterinary laboratories will further improve delivery of veterinary services and general better management of disease in the RPLRP districts;

- The project will put in place pesticide management facilities which will safeguard environment from pollution from such agrochemicals; and

- Revitalization of strategic animal check points and holding grounds under the project will ensure measures for disease control will be enhanced there by curbing aspects of disease spread and thefts.

4.2 Potential Negative Impacts and Mitigation Measures

The potential negative impacts are expected to be site-specific and reversible, with implementation of the proposed mitigation measures. Such impacts include:

- Construction of valley dams has potential to disturb the landscape around the dam through site clearance, excavation, establishing areas for storage equipment and construction materials, establishing accommodation facilities and parking, access roads. Such works can have impacts on the integrity of the environmental settings around the area. ***This is to be mitigated through ensuring that, works are kept to the minimum and restricted to the sites designated for the valley dams and their support facilities. In addition, the contractors should stockpile the topsoil excavated for restoration and re-vegetation of the site after works which will allow for normal re-vegetation and prevent any subsequent erosion and siltation;***

- Dam construction creates borrow pits which degrade the environment through extraction of fill materials for embankments. The borrow pits if poorly restored can be breeding sites for malaria and other water based vectors. ***The contractors should restore borrow areas as part of their contracts and the obligation should be built in the contract and the District Environment Officers should certify to ensure compliance;***

- The excavation works for valley dams generates volumes of cut to spoil materials which will need to be disposed from the site. In addition, the cut to spoil materials generates loose soils that can silt the water sources. ***It is proposed that, the contractors will lease dumpsites for the cut to spoil materials and should be sited outside water sources. The sites be leased from landlords in the area after a negotiated payments for such sites;***

- The construction and rehabilitation works for the dams involves use of plant equipment whose storage and operations can have attendant impacts on environment in terms of noise and compaction of soil thereby affecting soil percolation ability. ***Since RPLRP envisages rehabilitating valley small dams, it means the construction process will involve fairly light equipment which will have minimum impacts on soils. Also, the works will be of short-term nature thus reducing impacts on environment;***

- In addition, dam embankments can pose safety risk to both livestock and the communities. If the banks are high, safety of cattle to access water becomes an issue as well for the communities to draw water. In some instances, children can be tempted to swim in the dams and may end up drowning. ***Fencing the dams and reservoir may be required to prevent access to the embankment and its reservoir. This will serve to control access to deep sections. Secondly, sensitizing communities on the risks associated with the dams be done before they are operational. In all, provision be made for safe watering and collection of water by the communities;***

- Construction based impacts arising from excavation works during construction markets and associated project infrastructures will generate dust and other health associated implications on the workers and neighboring communities. ***This is to be mitigated through provision of Personal Protection Equipment (PPEs) and observing good engineering practices during construction;***

- Potential loss of vegetation cover through site clearance ***will be mitigated through limiting excavations to areas needed for establishment of project infrastructures and subsequent site restoration after works;***

- Potential relegation of traditional crop varieties in favor of projects high yielding varieties that will be developed by the project. The traditional varieties are adapted to the local environment. ***It is suggested that, farmers be sensitized on the need to keep along their old crop varieties as well as BoA keeping such germplasm in their seed Banks;***

- Site clearance works for infrastructure such as slaughter construction can lead to soil erosion, loss of vegetation and sedimentation of nearby water areas. ***This can be mitigated through restricting works to designated areas and planting vegetation after close of works;***

- The construction of slaughter facilities will raise issues relating to construction waste management, dust and noise amongst others. ***The contractor will follow best construction practices as will be enshrined in the contract;***

- Operation of slaughter facilities will generate a host of public health issues that can compromise the quality of meat products. ***It is suggested that, the Public Health Inspectors as well as Veterinary Officers at the District take charge in ensuring that, the operations of such facilities comply with the Public Health Proclamation;***

- There can be instances when animals die in markets due to transportation or disease. In addition, some meat in the slaughtered in the market could be declared unsafe for human consumption. ***Condemned meat in and dead animals could be disposed through use of special constructed pits in the vicinity where such carcasses can be disposed and waste engine oil poured on. Where resources allow, incinerators can be constructed or possibilities of use of existing incinerators in some of the health centers should be explored;***

- Accumulation and management of solid waste during operation of markets. ***This can be addressed through contracting out the operations and management of such markets by the area local governments;***

- Markets during their operations can have issues of crime triggered by alcohol consumption etc. ***The area police will be available to maintain law and order in such areas;***

- HIV/AIDS is one of the potential concerns resulting from operations and consumption of alcohol. ***HIV/AIDS service providers to provide condoms in strategic locations in the markets. This should be done by the project through collaboration with existing HIV/AIDS service providers***;

- Livelihoods interventions at household level can fuel instances of domestic violence against women by men over resources. It is common, when women get resources especially money; men tend to grab it for their needs. ***This intervention ought to build in mechanisms to protect women;***

- Operation of the cattle markets can bring about transmission of livestock diseases. ***The area Veterinary staff will issue movement permits for cattle that are to be taken to the markets and this will be done after inspection of the animals to ensure they are healthy and fit for human consumption;***

- Apart from meeting a basic human need, new water points could have a direct impact on the spread of livestock and human diseases since most water sources are shared in the region. ***The Project will sensitize communities on risks of sharing water sources with livestock;***

- If new water point construction does not take into account grazing patterns, it has risk of creating environmental degradation by promoting permanent grazing patterns in which, pastoralist tend to concentrate around water sources. ***The project in its plan, has attempted to spread out its plan on water supply interventions to create evenness of water availability to avoid this concern;***

- The plan to support alternative income generation enterprises at household levels ***will require careful planning and consultations to avoid gender based violence especially when husbands want to grab all the resources at the expense of the wives;***

- Increased agricultural production as a form of livelihood diversification and land use may come at the expense of use seasonal grazing areas. To ensure that RPLRP interventions are conflict sensitive, MoA will have to carefully monitor the impact of agricultural livelihoods development and rangeland use among groups within the communities. **This will be critical to reduce the likelihood that expanding agricultural land use will further conflict among groups relying on rangelands access;**

- Seed and planting materials distribution programs can have a number of social risks, including creating dependency among communities for hand-outs, and limited crop performance when seeds distributed do not fit local contexts or do not reflect farmer variety preferences. In addition, free distribution of seeds can also create high expectations among recipients that, the project will continue to provide seed year in year out. **To avoid creating dependency syndrome amongst the project beneficiaries, MoA will have to limit free seed distributions to a specific period and the project design should include a mechanism to inform and educate recipients about planning and savings for future seed purchases.**

For those RPLRP subprojects that have potential environmental and social impacts, information sheet is provided on the potential environmental and social impacts, and possible potential mitigation measures are presented in detail in Annex 11. Woredas, zone and regions shall refer to this when implementing the mitigation measures outlined in this ESMF.

4.3 Environmental and Social Management Plan

An Environmental and Social Management Plan (ESMP) for RPRLP Program is intended to ensure efficient environmental and social management of its activities. An ESMP translates recommended mitigation and monitoring measures into specific actions that will be carried out by MoA. The ESMP will need to be adjusted to the terms and conditions specified in any subproject approval. It will then form the basis for impact management during project construction and operation. Furthermore, the ESMP will identify key component activities and associated impacts, when such impacts will likely occur (project phase), mitigation measures, who will be responsible to implement the measures, and costs implementing the measures. With regard to ESMP implementation, it is important to note that, most impacts are expected to arise from construction based activities and as such, the contractors ought to be supervised to ensure application of best construction methods are put in place during implementation. This implies most costs are to be part of the contractor's works. An ESMP template and a generic ESMP to address typical impacts of the RPLRP is provided in Annex 5.

4.4 Environmental and Social Monitoring

Monitoring refers to regular collection of environmental data at the project site while environmental auditing is a systematic documentation, periodic and objective evaluation of protection and management of the environment. The objectives and the purpose of the Environmental and Social Monitoring Plan include:

i. Measure the extent, changes and benefits or severity of the environmental and social impacts on components predicted to be adversely affected;
ii. Ensure early detection of unexpected impacts and development of measures to remedy such concerns;
iii. Determine the efficiency of the mitigation or enhancement measures to reducing or improve impacts and to allow periodic review and adjustment of measures;
iv. Describe the sampling programmes, including the parameters to be measured; sampling strategies, frequencies, locations and times of sampling, personnel and equipment requirements and estimated costs;
v. Provide indications on assessment of the monitoring data and how this will be utilized technically and procedurally to improve mitigation and environmental management;
vi. Assess the adequacy of environmental monitoring such as selected monitoring locations, schedule, monitoring methods, as well as required supervision, and to suggest improvements, if appropriate, in the light of the results;
vii. Ensure that environmental and social management is being performed effectively in accordance with technical requirements and relevant laws and regulations; and
viii. Where applicable, identify possible capacity building needs amongst agencies that will be responsible for training.

The Monitoring Plan will specify the scope of project monitoring required for measuring potential environmental and social impacts during construction and operation phases. Similar to the mitigation plan, monitoring requirements are specific as to what is to be monitored, how and by whom (with clear delineation of responsibilities between the different groups or agencies will be outlined.

Matrix of Environmental and Social Monitoring Plan for the Project

Project Phase • Construction • Operation, • Maintenance • Decommissioning	**Environmental & Social Issue**	**Monitoring indicators**	**Agency/Entity Responsible for Monitoring**	**Monitoring Activities to be undertaken**	**Frequency of Monitoring** • **Daily/Continuous** • **Weekly,** • **Monthly** • **Annually**	**Unit Cost (USD)**

Environment Indicators

i) Loss of vegetation
ii) Land degradation
iii) Compliance with laws and regulations.
iv) Water quality in communities meets international standards,
v) Proper waste management practices related to construction works,
vi) Land restoration and revegetation after construction and or rehabilitation works,
vii) Solid waste separation and recycling/disposal measures adopted in settlements,

viii) Compliance with the Environmental Guidelines for Contractors
ix) Pest management practices by communities,
x) Best practices in the implementation of program activities,

Social indicators

i) Population incomes
ii) Number of people resettled
iii) Environmental and social awareness
iv) Effect of program implementation on local household economies.

5. Environmental and Social Safeguard Policies relevant to RPLRP

Safeguards Policies Triggered by the Project

The ESMF will be required to comply with not only the relevant national policy and legal frameworks but also with the applicable environmental and social safeguard policies of the World Bank. The safeguard policies that will be triggered by the RPLRP (specifically by the project component I, component II and component III) are described below.

Environmental and Social Assessment (OP 4.01): This policy requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. Environmental assessment should be conducted for projects which fall under World Bank category A & B. These are also schedule 1 & 2 according to EIA guideline of the GoE.

RPLRP will finance small scale community driven sub-projects some of which will require environmental management. These can include small scale water resource development for irrigation, livestock, water supply; implementation of watershed based natural resource management activities; construction of market centers; provision of chemicals, vaccines, drugs and consumables to veterinary laboratories; implementation of forage development and range land management subprojects; and others. Thus, investments under RPLRP will be subject to environmental and social screening during the planning stage, and appropriate steps will be taken based on the results of the environmental and social screening process outlined in this document**.** This project has been categorized as B.

Natural Habitats (OP 4.04): This policy is triggered by any sub-project and household based livelihood intervention with the potential to cause significant conversion (loss) or degradation of natural habitats, whether directly (through construction) or indirectly (through human activities induced by the project).

Pastoral areas in Ethiopia encompass some natural habitats which are protected by law, such as the Awash and Yangudi Rasa National Parks (Afar), Yabello Sanctuary (Borena) and the Babile Wildlife Sanctuary (Somali). It is conceivable that RPLRP may operate in Woredas that border upon areas such as those mentioned above Though RPLRP will not finance any activities in natural habitats or those in the periphery likely to negative affect these ecological systems,

RPLRP will take appropriate steps, as per this ESMF, to prevent and/or mitigate any potential impacts to these areas.

Pest Management (OP 4.09): The policy supports safe, effective, and environmentally sound pest management. It promotes the use of biological and environmental control methods. Rural development projects have to avoid using harmful pesticides. A preferred solution is to use Integrated Pest Management (IPM) techniques and encourage their use in the whole of the sectors concerned.

Although RPLRP funds will not be used to manufacture, or directly purchase or distribute agrochemicals for crop production, it is likely that support through the RPLRP will encourage farmers to use more pesticide especially as a result of intensified agriculture both irrigated and rain-fed; development of veterinary facilities, cattle dip; weed control; diversification into new agricultural crops, particularly if these tend to receive high usage of pesticide; new land use development or changed cultivation practices in an area; and expansion of agricultural activities. Pests are defined in the broad sense. In addition to agricultural insect pests and plant diseases, pests also include weeds, birds, rodents, and human or livestock disease vectors. RPLRP will adopt safe practices regarding pest management in its agricultural sub-projects and vector management in its animal health sub-projects to ensure that these investments are environmentally and socially sustainable. In this regard, a Guideline for Pest Management Plan (PMP) has been annexed to this ESMF (Annex 6). Also, the RPLRP finances the purchase of vector and disease control drugs, chemicals, vaccines to improve the productivity of the livestock. The project will also finance the upgrading and strengthening of veterinary laboratory services through provision of laboratory chemicals, consumables and reagents. Vector and Disease Control/Prevention Plan will be prepared when implementing subprojects involving the control of vector and diseases on animals in veterinary clinics and laboratories. A Vector and Disease Control/Prevention Framework is annexed to this ESMF (annex 7).

OP 4.10: The objective of this policy is to (i) ensure that the development process fosters full respect for the dignity, human rights, and cultural uniqueness of vulnerable and historically under-served communities and peoples; (ii) ensure that they do not suffer adverse effects during the development process; and (iii) ensure that such communities and peoples receive culturally compatible social and economic benefits.

The Project triggers OP 4.10 because it will operate in areas where the vast majority of people meet the criteria of this policy. Ethiopia has adequate constitutional provision to cover the needs of vulnerable and historically under-served nations, nationalities and peoples. The Project has conducted an enhanced social assessment that was carried out under extensive consultation in the selected geographical areas. The assessment revealed that there are undeserved, very vulnerable and some groups are out casted and have their own boundary, language, unique culture and practices, identity. During the implementation of the project care should be taken to safeguard them, and the potential implementation risks and challenges, and mitigation measure highlighted in the Social Assessment must be implemented by the project.

Physical Cultural Resources (OP 4.11): The objective of this policy is to assist countries to avoid or mitigate adverse impacts of development projects on physical cultural resources. For purposes of this policy, "physical cultural resources" are defined as movable or immovable

objects, sites, structures, groups of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above ground, underground, or underwater.

RPLRP subprojects would be unlikely to involve large scale excavation or inundation and are thus not likely to significantly affect physical cultural resources. Furthermore, activities will be carried out only in areas selected by local citizens who would give great importance to safeguarding their cultural resources and properties. The policy is triggered because under the RPLRP small scale infrastructure sub-projects such as small scale water resources development; market centre construction, watershed based soil natural resources management subprojects will be provided and these may involve land clearing and excavations that may potentially affect physical and cultural resources. The policy is triggered in case chance finds are encountered during project civil works. No sub-project that might have negative impacts on cultural resources will be funded without acceptable mitigation measures prepared prior to execution of any such subproject. There are national procedures and guidelines for reporting chance finds to be followed and a national entity for coordinating and facilitating the archiving, safekeeping and documentation of physical cultural resources is in place. Also, necessary steps of public consultations, engagement of cultural or religious leaders, local authorities will need to be conducted before decision on a subproject is made.

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Involuntary Resettlement (OP 4.12): This policy covers not only to physical relocation, but also any loss of land or other assets resulting in: (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected people must move to another location. This policy also applies to the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.

The RPLRP will endeavor to avoid undertaking any sub-projects that will displace people. However, it would support small-scale rural infrastructure that may affect land holdings and/or assets of individual pastoralists/agro-pastoralist. While individual sub-projects are not yet identified, there will be support for activities such as small-scale infrastructure to improve productivity as well as other rural infrastructure such as water resource development subprojects. Therefore, OP/BP 4.12 has been triggered. A separate RPF has been prepared to guide the implementation of preventive and mitigation measures related to land acquisition and restriction of access to natural resources. For subproject, which require land acquisition and property losses, based on guidance provided in the RPF, a Resettlement Action Plan (RAP) will be prepared and implemented accordingly prior to commencement of works on that subproject.

Projects on International Waterways (OP 7.50): The policy seeks that if a project activity adversely impact on the quality and quantity of water of international waterway shared with one or more countries, a negotiated agreement should be established. RPLRP would abstract significantly less water from any of the shared rivers or drainage systems. The project has triggered OP 7.50, and the notification letter to the riparian countries, together with responses, will be provided when it is received.

Safeguards Policies not triggered by the project

Safety of Dams (OP/BP 4.37): RPLRP would not finance any new establishment or rehabilitation of large scale irrigation facilities and dams above 15 meter height. However, RPLRP might finance check dams or small dams for water storage. Small dams include weirs, farm ponds, local silt retention dams, and low embankment dams. In cases of small dams construction (less than 4.5 meters), the Project will use the FAO 'Manual on Small Earth Dams, A Guide to Siting, Design and Construction' (FAO Irrigation and Drainage Paper # 64, Rome, 2010. Available at FAO website: www.fao.org). In addition, the guideline for small dam construction prepared by the MoA will be used to ensure safety of small dams. The guideline is attached as Annex 12.

Forests (OP 4.36): The policy is not triggered as project activities do not have any direct impacts on the health and quality of forests; people who depend on forests; nor is there an aim to change the management, protection, or utilization of forests. The ESMF will provide mechanism of screening to identify potential impacts of the project on forests and protected areas.

Projects in Disputed Areas (OP 7.60): This policy is not triggered because the program will not finance any activity in disputed areas.

6. Environmental and Social Management

This section of the ESMF describes how the project will respond to the need for the environmental and social management. The ESMF emphasizes that subproject planning should strive for plans and designs that avoid or minimize creating adverse environmental and social impacts explicitly managed. All the potential environmental and social impacts as results of the RPLRP subprojects, and associated potential mitigation measures are described in detail and annexed in this ESMF (Annex 11). It should be noted that only relevant impacts and mitigation measures related to that particular subprojects considered when using the information there.

6.1. Environmental and Social Management Plan (ESMP)

The RPLRP is a category 'B' project and sub-projects may not require a full scale ESIA. However, environmental and social analysis is necessary and appropriate environmental and social management plan has to be prepared to prevent, minimize, mitigate or compensate for adverse impacts. In some cases, some subprojects may require the preparation of an ESIA, and the ESMP must be prepared as part of the ESIA.

The format for ESMP will follow the requirements under the Ministry of Environmental Protection and Forest EIA guidelines document and the World Bank OP 4.01 requirements. An ESMP should be a short and concise document, perhaps only a few pages, and must contain the necessary sections as outlined in Annex 5. The ESMF stresses community participation in preparing an ESMP since local knowledge is important in identifying, designing and planning the implementation of practical mitigation measures. It is especially important where the success of an ESMP depends on community support and action, both in implementing mitigation measures and monitoring their success.

6.2. ESMF Application Procedures for RPLRP Subproject

The ESMF application under RPLRP will consist of five steps involved in the screening, environmental and social management plan (ESMP) preparation, conducting environmental and social impact assessment (ESIA), review and approval of sub-projects and interventions to be supported under the Rural Livelihood Program, and public consultation and disclosure both at woreda and regional level.

Step 1: Environmental and Social Screening

The objective is to assess any potential safeguard issues early in the design and preparation process. The initial environmental and social screening will be carried out through the use of the Environmental and Social Screening Form (Annex 1& 2 for Community Sub-projects and Annex 3 for Rural Livelihood Program supported interventions). These forms will be completed by the Woreda Appraisal Team and a qualified member of the MST for the purposes of identifying the potential environmental and social impacts, determining their significance, and making recommendations as to the required environmental and social work that needed to be done. To be qualified for this task, the members of the Woreda Appraisal Team and MST will receive relevant training in environmental and social safeguards management.

The environmental and social screening will focus on the following issues, among others:

- Would the sub-project lead to significant conversion or degradation of critical natural habitats and forest resources?
- Would the sub-projects adversely affect physical cultural resources?
- Would sub-projects involve the use of pesticides or agrochemicals?
- Would sub-projects lead to social conflict, loss of livelihoods, restrictions and access to resource use?
- Would sub-projects require land acquisition, property losses or relocation of local communities?
- Would sub-projects affect vulnerable or under-served peoples/groups or women without having obtained their free, prior and informed consent?

Step 2: Assigning the Appropriate Environmental Categories
Based on the environmental and social screening results, the appropriate environmental category – "C" or "B" – for the proposed sub-project will be determined. This step will be carried out by the Woreda Appraisal Team with support of a qualified member from the MST. Woreda Appraisal Team and MST staff will receive appropriate training to be able to carry out their tasks effectively.

The assignment of the appropriate environmental category will be consistent with the provisions of the World Bank's OP 4.01 Environmental Assessment. Consistent with this operational policy, some sub-project activities such as construction, rehabilitation, irrigation, or/and livestock activities are likely to have some negative environmental and social impacts that might require mitigation.

Some sub-projects might be categorized as "B" meaning that the potential adverse environmental impacts on human populations or environmentally important areas – including wetlands, forests, grasslands, and other natural habitats – are site-specific, few if any of the impacts are irreversible, and they can easily be mitigated.

The environmental assessment category of a sub-project will be defined during the screening step. If the screening form has only "No" entries, the sub-project will be a "C" and will not require further environmental work. The chair of the Woreda Appraisal Team will recommend approval of this sub-project to the WDC and implementation can proceed. If there are any "Yes" entries, the sub-project will be a "B" and will require further preparation work (Step 3 below).

As far as the rural livelihood diversification is concerned, the primary reason to promote livelihoods is the belief that all human beings have the basic right to equal opportunity. Thus, it is necessary to ensure that a poor household has a stable livelihood that will substantially increase its income, and over a period of time, asset ownership, and social participation. The focus on identification of investment opportunities, innovation, and prospects for diversification is to enable pastoral and agro-pastoral households to develop more robust livelihoods and to improve the rate of return on economic activities through the use of improved technology and innovative methods such as improved seed varieties, improving soil fertility and better animal varieties. The focus of the ESMF in the case of the rural livelihood program will be to screen the proposed intervention in terms of (a) the extent to which returns of investments have been considered, (b) the extent to which consultations have been inclusive, particularly of those who

are believed to have been left out mainstream development (e.g., vulnerable and poorest households, the landless, the underserved people, women, minorities and people living in inaccessible areas), and (c) the cumulative effective of investments on the environment.

Step 3: Carrying Out Environmental and Social Work

After reviewing the results of the environmental and social screening process, and having determined the appropriate environmental category, the scope of the required environmental and social work will be determined. Thus, the Woreda Appraisal Team with support from the relevant MST member and concerned stakeholders at the community level will determine the extent of environmental and social work required, that is, whether the application of mitigation measures outlined in the Environmental and Social Checklist will suffice (Annex 11). Depending on the screening results, the following environmental and social work can be carried out:

Environmental and Social Management Plan (ESMP)

If the environmental and social screening (ESS) resulted a 'Yes' response in at least one environmental and social aspects of the subproject, ESMP including the monitoring plan should be prepared by the Woreda Appraisal Team with support from the MST. The ESMP put systematically the impacts, the mitigation measures, the cost/budget required, monitoring plan, responsible body and the schedule to implement the plan (See annex 5). When preparing ESMP, the environmental and social checklist for different subprojects shall be consulted especially for the potential environmental and social impacts and potential mitigation measures (annex 11). Annex 5 shall be consulted for the ESMP template that guides how to prepare the ESMP including the components of the ESMP.

For subprojects that have issues on pest management, vector and disease control/prevention, land acquisition and property losses, and historically vulnerable peoples or groups; pest management plan (PMP), vector and disease control plan, RAP shall be prepared. For this, refer annex 6 for PMP, annex 7 for vector and disease control/prevention framework plan, and the independent RPF document for the RAP. When preparing all these plans, consultation with the relevant local communities as well as potentially affected persons is critical to include their view.

For infrastructure development with existing standard designs, the qualified sector staff at the woreda sector office and the MST will assess them for impacts on the selected land site and, if necessary, in consultation with concerned regional Bureaus modify the design or the proposal to include appropriate mitigation measures.

Once the Woreda Appraisal Team and MST are satisfied that the sub-project and household targeted intervention proposals are environmentally and socially compliant, the Woreda Appraisal Team will then submit the sub-project, business plan or innovation grant proposal to the WDC for approval at the woreda level. The sub-project or seed money/innovation grant proposal documentation must be accompanied by the completed environmental and social screening forms and the ESMP and other relevant safeguards plans. The WDC will review and approve all these and fund requested for interventions. However, if WDC is not satisfied with the result of screening process and prepared management plans, then WDC conduct field appraisal before approving and provide comments on the screening, ESMP and other safeguards plans for

further improvement. The WDC shall use the field appraisal form (annex 4) when conducting field appraisal. Accordingly, MST and woreda appraisal team will incorporate the comments and then resubmit the amended one to the Woreda Development Committee for approval.

Step 4: Review and Approval
Upon receipt of all the relevant sub-project and household livelihood diversification intervention proposal, the WDC will review the environmental and social screening results and management plans (ESMP, RAP, PMP) to ensure that all environmental and social impacts have been identified and successfully mitigated and that the process for free, prior and informed consent to both CAP and CLP development has been properly followed.

A review of the environmental and social screening form and management plans (ESMP, RAP, PMP) will assess the adequacy of the sub-project's and household based activity preparation process and implementation measures vis-à-vis the safeguard issues, including:

- Compliance with this ESMF, RPF, SA and World Bank environmental and social safeguard policies, national environmental and social legal requirements, as well as supplemental instruments;
- Potential of the proposed activities to cause adverse environmental and social impacts; and
- Adequacy and feasibility of the proposed mitigation measures and monitoring plans.

Based on the review of the sub-project or household based intervention documents and if the proposals have satisfactorily addressed all environmental and social issues, the WDC, upon advice of the MST will give final approval.

If the WDC finds that the submitted proposal is not consistent with the requirements of the environmental and social screening based on the environmental and social checklist, then the sub-project/household based activity implementer would be requested to re-design (e.g. make additional modifications and/or choose other sites) and re-screen the project until it is consistent with the environmental and social screening requirements.

The WDC will then review again the revised application, if found acceptable, it will give final approval for sub-projects and seed money/innovation fund proposal. If it is not acceptable for the second time, any proposal for funding that do not comply with the requirements of Ethiopian policies and regulations and the World Bank Safeguards policies will not be cleared for funding.

ESMF implementation at regional level (screening, ESMP preparation, review and approval)
From experience, there is a capacity problem at woreda level to manage some infrastructure projects like the Feasibility Study and Design (FSD) and construction work of small scale irrigation subprojects. In this case, regional implementing agencies - IAs (water resource development/Irrigation development bureaus) will manage the FSD and construction activities. It is the responsibility of the regional implementing agencies to conduct the environmental and social screening (ESS) and ESMP preparation (including RAP, PMP, and vector and disease control/prevention plan). The regional IAs use the same ESS form (Annex 1-3), ESMP template (annex 5), and environmental and social checklist (annex 11). The regional Environmental

Protection, Land Administration and Use Authorities (EPLAUAs) are responsible to review and give approval the environmental and social screening reports, ESMP (including RAP, PMP, and vector and disease control/prevention plan).

If the desk review indicates that the proposed subproject may have environmental or social concerns that are not adequately addressed in the ESS and management plans, or if it meets certain criteria, the review authority requires field appraisal before the application can be considered for approval and need to comments on the submitted documents. For the field appraisal, the regional EPLAUA shall use the field appraisal form indicated in annex 4 of this ESMF. The regional IAs then will incorporate the comments and re-summit to the regional EPLAUAs. The regional EPLAUAs will then review again the amended ESS reports and managements plans, if found acceptable, it will give final approval for sub-projects and seed money/innovation fund proposal. If it is not acceptable for the second time, any proposal for funding that do not comply with the requirements of Ethiopian policies and regulations and the World Bank Safeguards policies will not be cleared for approval.

In case any subproject requires full environmental and social impact assessment (ESIA), the regional EPLAUA advises the concerned regional implementing agency defines the scope with emphasis on the required skills, areas of focus and duration of ESIA. In other words, the regional EPLAUA communicates to regional concerned IAs to prepare ToR for the conduct of ESIA. The regional IAs should prepare ToR and submit to regional EPLAUAs for review. In this regard, the federal RPLRP safeguard specialist will provide technical support to regional IAs in preparing ToRs. The regional IAs will submit the ToRs to regional EPLAUA for review and approval. The regional EPLAUA reviews and provides comments on the ToR timely so that the regional IAs can conduct ESIA by own force if they have the capacity or outsource to independent consultant. Once the ESIA is done (including undertaking public consultations), the ESIA report should be reviewed by the regional EPLAUAs in the shortest possible time to avoid delaying RPLRP subprojects from implementation.

If the regional EPLAUAs consider the environmental and social consideration for a particular subproject is not adequately addressed, they can undertake field appraisal before the subproject is approved for financing.

Criteria for ESIA approval

Two decisions can be made based on the ESIA of the RPLRP subprojects.

1. If the ESIA is in conformity with the environmental categorization, applicable Safeguard Policies of the World Bank and the environmental and social requirements and guidelines of Ethiopia, the subprojects will be granted an environmental clearance.

2. On the other hand, if the ESIA does not fulfill the Banks safeguard policies and the country's environmental and social legal requirements and guidelines, the decision will be one of the following:

    - Request for supplementary or new ESIA report; or
    - Approval of the implementation of the subproject with condition; or

- Rejection.

The regional EPLAUA should communicate the decision of the review of the ESIA report to concerned regional implementing agencies and regional RPCU.

Step 5: Public Consultation and Disclosure

Public consultations as part of the environmental screening and identification of mitigations are critical in preparing an effective and sustainable sub-project as well as livelihood intervention that fits the situation of the households. This requirement is complemented by the participatory planning process that is followed by RPLRP at the community level when sub projects or viable household based interventions are being identified as part of the development and implementation of local development plans for the area. RPLRP being a participatory project, beneficiaries is expected to be directly involved in the whole project cycle right from the design, to implementation and monitoring.

The first step in this regard is to hold public consultations with the local communities, households and all other stakeholders during the screening process. These consultations should identify key issues and determine how the concerns of all parties will be addressed. Once the sub-projects, business plans and/or innovation grant proposals have been reviewed and approved by the WDC, the WDC will inform the public about the results of the review. For all proposals that will be implemented at the community level, the WDC will be responsible for disclosing the findings and recommendations of the environmental and social screening process and ESMP (including the RAP, PMP, vector and disease control/prevention plan) to the communities or households, assisted by the Woreda Appraisal Team and qualified member of the MST.

The Woreda Appraisal Team or MST will be responsible for taking (and filing) the minutes of the consultation and disclosure meetings. The office of the WDC will produce and distribute copies of the minutes to offices at the community and Woreda levels. At regional level, it should be done by the regional implementing agencies. Any affected or interested individual or group has the right of appeal, if dissatisfied with the decision reached at any stage of the appraisal process. The communities will also undertake both compliance monitoring and effects monitoring throughout the sub-project cycle.

6.3. ESMF reporting

Local authorities are normally required to report quarterly and annually on their subproject activities during the preceding quarter and year, respectively. These quarter and annual reports should capture the experience with implementation of the ESMF procedures. The purpose of these reports is to provide:

- A record of experience and issues running from quarter-to-quarter/year-to-year throughout the subproject that can be used for identifying difficulties and improving performance; and
- Practical information for undertaking an annual review.

Quarterly and annual reports should be prepared at Woreda, regional and federal levels. Forms proposed to be filled by Woreda Appraisal Team/MST, regional EPLAUA and federal safeguards specialist is attached in this ESMF (Annex 14). At Woreda level, quarter and annual report form will be completed by woreda Appraisal Team/MST and will be sent to regional

EPLAUA for compilation. Regional EPLAUA will compile and will send quarter and annual ESMF implementation report to the FPCU. Safeguard specialist at federal PCU will compile regional ESMF report and will send to the World Bank for review.

7. Implementation, Supervision and Monitoring Process

7.1. Implementation and process monitoring

Environmental and social monitoring needs to be carried out during the construction as well as operation and maintenance of the sub-projects or identification and implementation of household interventions in order to ensure that mitigation measures are implemented, have the intended result, and that remedial measures are undertaken if mitigation measures are inadequate or the impacts have been underestimated within the environmental and social assessment (ESA).

At woreda level, the Woreda Appraisal Team/MSTs will be responsible for the day to day monitoring and reporting of feedback throughout the whole process. They will supervise and review environmental and social safeguard documents and issues during implementation. Specifically the monitoring of the following aspects will be done:

- The environmental and social assessment processes (screening; ESMP preparation including RAP, PMP including vector and disease control/prevention plan,);
- The monitoring of the implementation of the mitigation measures designed;
- Monitoring of environmental and social issues and the supervision of the civil works contractor during the construction process;
- Monitoring of environmental and social issues during operations and maintenance of the infrastructure and facilities when handed over to the communities after construction;
- Monitoring the implementation of household based interventions;
- Submission of monitoring reports to the WDC and regional project coordination unit;
- The monitoring and reporting will be done by members of the MST and staff representing the respective sector at the Woreda level who will be adequately trained.

At community level: communities, through their representatives will undertake - after training - both compliance monitoring and effects monitoring. This will be done throughout the sub-project cycle namely:

- During the planning phase, the communities will participate in the identification of indicators for monitoring the mitigating measures;
- During implementation (construction) phase, monitoring the execution of works with respect to environmental and social aspects, e.g. verify the compliances of the contractors with their obligations;
- During operation and maintenance phase, the overall environmental and social impact monitoring and alerting on any emerging environmental and social hazards in conjunction with the ongoing sub-project activities.

Federal and regional PCUs, regional IAs and EPLAUAs are also responsible for the monitoring and evaluation of the implementation of the ESMF. When peoples and communities are affected, they will be included in participatory monitoring and evaluation exercises.

7.2. Result monitoring

The results monitoring plan has two components: i) monitoring of the compliance and effectiveness of the ESMF and application of the recommended standards; ii) impact monitoring, i.e., measuring the socio-economic impacts of the project interventions. The M&E system will provide the required information for results monitoring.

FPCU and RPCU will conduct result monitoring of all safeguard policies, including those were not triggered. The purpose of these reviews is to support compliance with safeguard policies, to identify the emergence of any unforeseen safeguard issues, to determine lessons learnt during project implementation; to provide recommendations for improving future performance; and to provide an early warning about potential cumulative impacts.

Annual review workshops will be conducted at regional (woreda and zone participants) and federal (regional participants) level with the objectives to:

- assess project performance in complying with ESMF procedures, learn lessons, and improve future performance; and
- assess the occurrence of, and potential for, cumulative impacts due to project-funded and other development activities.

The participants of the ESMF review workshop are RPLRP implementing agencies whose RPLRP subprojects have environmental and social concerns and are responsible for the ESMF implementation at all levels. Regional workshop will be organized by regional RPCUs in collaboration with regional EPLAUAs. Federal level workshop will be organized by federal PCU. The annual review workshop will be organized at the end of the each year. Besides, the World Bank, as necessary, will periodically conduct reviews of the implementation of the ESMF, RPF, supplemental safeguard instruments and other operational policies under RPLRP. For the details see annex 8 (Monitoring and Evaluation of ESMF Implementation).

8. Capacity Building, Training and Technical Assistance

8.1. Institutional Capacity Assessment

The implementation of project interventions will be undertaken in a decentralized fashion and the safeguards instruments (ESMF, RPF, and an enhanced social assessment) requirements will be applied at the woreda level and in some cases at regional level. Woreda and zone level government offices do not, however, have the necessary capacity to apply these safeguards instruments effectively. GoE staff at all levels will therefore need training to strengthen social and environmental impact assessments for sub-projects as well as their implementation; and to ensure adequate monitoring. Additionally, specific training and capacity building of Development Agents (DAs), Kebele Development Committee (KDC) and Sub-Kebele

Development Committee (KDC) involved in the identification, selection and approval of infrastructural projects will be provided.

8.2. Training

In view of the above mentioned apparent shortcomings, sufficient knowledge on environmental management principles, project screening, and impact mitigation, monitoring and follow-up is a necessity. Training and awareness creation is required at different levels of implementation for RPLRP implementing agencies. Capacity building training plan will be developed to (i) enhance the capacity of all implementing entities mainly at woreda and zone levels, and at regional level to be able to implement and monitor the execution of the safeguards instruments, and (ii) to enhance capacity of community level public administrative structures and community-based institutions to monitor the implementation of the safeguards instruments. As the need is indicated by the Performance Reviews or M&E activities, refresher courses will also be prepared and delivered during RPLRP life.

Training areas

- The importance of public consultations and participation of households in the screening, planning, review, implementation and monitoring process;
- Ethiopian environmental and social legal requirements related to RPLRP;
- World Bank environmental and social safeguards policies triggered by RPLRP;
- Institutional arrangement, procedures and process in implementing ESMF;
- Environmental and social assessment and preparation of ESMP;
- ESIA process and methodologies;
- Reporting, monitoring and follow-up of ESMF;
- PMP including vector and disease control plan, RPF and RAP.

Table 8.1: Type of training (T) and target groups for the effective implementation of ESMF

Topics	***RPLRP Implementing agencies (IAs) experts at regional level including regional RPLRP-CU staffs***	***Woreda Appraisal Team/MST and Zone IAs experts***	***Kebele Development Agents***	***Community (KDCs and SKDCs)***
TOT on ESMF implementation which include: • ESMF requirement; • The World Bank safeguards policies and national legal requirements; • ESMF process, procedures and using the ESMF checklist; • ESMF reporting and subproject supervision and monitoring; • Preparation of ESMP, IPMP and RAP • Community participation and consultation	Training (T)	T	T	Awareness creation
ESMP preparation guideline	T	T		
Environmental and social impact assessment process and methodologies	T			

8.3. Technical Assistances

For effective implementation of the ESMF, RPF, Enhanced Social Assessment and other safeguards instruments, technical assistance is required at region, Woreda and local (Kebele) level. To ensure that local communities, DAs, Woreda, zone and region government staffs accomplish their responsibilities as set out in this ESMF to implement the safeguards instruments at all level; a general technical assistance will be given by federal, regional, zone MST and regional EPLAUA. This assistance include assessment of training effectiveness; monitoring of the effectiveness of the mitigation measures set out in the ESMP, RAP, PMP and other safeguards instruments; and monitoring and supervision of the ESMF implementation. This will be done in quarterly bases and when it is required.

Besides the general technical assistance, a specific technical assistance will be given for local communities, DAs, Woreda and region government experts if specific technical knowledge is required when preparing, studying, designing and approving more challenging subprojects; preparing ESMP, IPMP, and RAP; and other assistance as required.

The budget for specific technical assistance is part of the subproject whereas the budget for general technical assistance is planned and included in the ESMF implementation budget in table 9.1 as presented in section 9.

9. ESMF Implementation Budget

The ESMF, RPF, SA and other safeguards instruments implementation budget for the training, general technical assistance, and environmental and social review is estimated and presented in table 9.1 below. The budget for the specific technical assistance in the implementation of the safeguards instruments is part of the subproject cost and is not included here. Budget for the mitigation measures when implementing subprojects is not included here. This is because it is part of the subprojects and is also difficult to estimate at this time.

Table 9.1: Estimated ESMF Implementation Budget

			No of days/ (Frequency)	*Budget in USD ('000)*					*Total Budget*
				Year 1	***Year 2***	***Year 3***	***Year 4***	***Year 5***	
1. Training									
Topic	***Sub topics***	***Target groups***							
Awareness creation and sensitization workshop on role of ESMF for RPLRP subprojects		Regional level decision makers	1(1)	0.645	0.71				1.355
		Zone level decision makers	1(1)	1.183	1.29	1.425			3.898
		Woreda level decision makers	1(1)	11.11	11.828	12.097			35.036
TOT on ESMF guideline	• ESMF requirement; • The World Bank safeguards policies and national legal requirements; • ESMF process, procedures and using the ESMF checklist; • ESMF reporting and subproject supervision and monitoring; • Preparation of ESMP, IPMP and RAP Community participation and consultation	Federal level to region IAs	4(1)	11.112	11.29		13.656		36.058
		Regions to Woreda and Zone IAs	4(1)	40.322	55.322		33.468		129.112
		Woreda to Development agents and supervisors	2(1)	58.79	64.669		71.134		194.593

			No of days/ (Frequency)	*Budget in USD ('000)*					*Total Budget*
				Year 1	***Year 2***	***Year 3***	***Year 4***	***Year 5***	
		DA to KDCs							
Environmental and social impact assessment processes and methodologies	• Impact analysis, • development of mitigation measures, • preparation of ESMP, IPMP & RAP	Federal to Regional IAs	10 (1)		18.817				18.817
Annual environmental and social review workshop		At federal level	2(1)	7.102	7.502	8.752	9.077	9.985	42.418
		At regional level	2(1)	10.364	11.400	12.54	13.794	15.173	64.271
Subtotal for Training				***140.628***	***182.828***	***34.814***	***141.129***	***25.158***	***524.557***
2. ***Technical Assistance***									
Technical assistance (TA)	General TA	Federal to region, Woreda & Kebele;	4	3.871	4.258	4.684	5.152	5.668	23.633
		Region to Woreda and Kebele;	4	15.484	17.016	18.718	20.59	22.648	94.82

			No of days/ (Frequency)	*Budget in USD ('000)*					*Total Budget*
				Year 1	***Year 2***	***Year 3***	***Year 4***	***Year 5***	
		Zone to Woreda and Kebele;	4	15.054	16.559	18.215	20.037	22.040	91.905
		Woreda to Kebele	12	87.043	95.743	105.322	115.854	127.44	531.402
Subtotal for Technical Assistance				***121.452***	***133.576***	***146.939***	***161.633***	***177.796***	***741.396***
Grand Total				***262.08***	***316.404***	***181.753***	***302.762***	***602.954***	***1265.953***

10. Technical Annexes

Annex 1: Community Sub-projects Social Screening Form (SSF)

The Social Screening Form (SSF) has been designed to assist in the evaluation of sub-projects of RPLRP in Ethiopia. The form is designed to place information in the hands of implementers and reviewers so that impacts and their mitigation measures are determined.

The Form contains information that will allow reviewers to determine the characterization of the prevailing local bio-physical and social environment with the aim to assess the potential social negative impacts of the sub-project. The social screening form is a generic form and can be used for all subprojects

A. Name of the sub-project……
B. Sector……
C. Name of the Kebele/community----------(in which the sub-project is to be implemented)
D. Name of the Approving Authority ……
E. Contact details of the person responsible for filling out this SSF:

Name: ……..
Job title:……
Telephone numbers:……; ……..
Fax Number: …….
E-mail address: ……..
Date: ……..
Signature: ……..

PART A: BRIEF DESCRIPTION OF SUB-PROJECT

Please provide information on the type and scale of the sub-project (area, required land, approximate size of total building floor area, etc.).

Provide information about actions needed during the construction of facilities including support/ancillary structures and activities required to build it, e.g. need to quarry or excavate borrow materials, laying pipes/lines to connect to energy or water sources, access roads, etc.

Describe how the sub-project will operate, including support/activities and resources required operating it, e.g. roads, disposal sites, water supply, energy requirement, human resources, etc.

PART B: SOCIAL SAFEGUARDS SCREENING FORM:

	Social safeguards screening information	Yes	No
1	Will the sub project activities reduce other people's access to their economic resources, like land, pasture, water, public services or other resources that they depend on?		
2	Will the project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?		
3	Will the project result in the temporary or permanent loss of crops, fruit trees and household infra-structure (such as granaries, outside toilets and kitchens, etc.)?		
4	Will the project require excavation near any historical, archaeological or cultural heritage site?		
5	Might the project adversely affect vulnerable people and underserved groups (e.g., elderly poor pensioners, physically challenged, women, particularly head of households or widows, etc.) living in the area?		
For all issues indicated by "Yes", the applicant is expected to explain how he/she intends to mitigate them. Implementation of the mitigation measures will require using the Rresettlement Policy Framework or Resettlement Action Pan as required in OP4.12			

Annex 2. Environmental and Social Screening Form (ESF) for Community Sub-projects

The Environmental and Social Screening Form (ESSF) has been designed to assist in the evaluation of sub-projects of RPLRP in Ethiopia. The form is designed to place information in the hands of implementers and reviewers so that impacts and their mitigation measures are determined.

The Form contains information that will allow reviewers to determine the characterization of the prevailing local bio-physical and social environment with the aim to assess the potential sub-project impacts on these environments.

A. Name of the sub-project……
B. Sector……
C. Name of the Kebele/community----------(in which the sub-project is to be implemented)
D. Name of the Approving Authority ……
E. Contact details of the person responsible for filling out this ESSF:

Name: ……..
Job title:……
Telephone numbers:……; ……..
Fax Number: ……..……..
E-mail address: ……..……..
Date: ……
Signature: ……

PART A: BRIEF DESCRIPTION OF SUB - PROJECT

Please provide information on the type and scale of the sub-project (area, required land, approximate size of total building floor area, etc.).

Provide information about actions needed during the construction of facilities including support/ancillary structures and activities required to build it, e.g. need to quarry or excavate borrow materials, laying pipes/lines to connect to energy or water sources, access roads, etc.

Describe how the sub-project will operate, including support/activities and resources required operating it e.g. roads, disposal sites, water supply, energy requirement, human resources, etc.

PART B: BRIEF DESCRIPTION OF THE ENVIRONMENTAL AND SOCIAL SITUATION AND IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

1. Brief description of the proposed sub-project

Describe the sub-project location, sitting; surroundings (include a map, even a sketch map)

_____

_____

_____

2. Natural Environment

(a) Describe the land formation, topography, vegetation in/adjacent to the project area

_____
_____
_____

(b) Estimate and indicate where vegetation might need to be cleared.

_____
_____
_____

(c) Are there any environmentally sensitive areas or threatened species (specify below) that could be adversely affected by the sub-project?

(i) Intact natural forests: Yes _____No _____
(ii) River line forests: Yes _____ No _____
(iii) Surface water courses, natural springs: Yes _____ No _____
(iv) Wetlands (lakes, rivers, swamps, seasonally inundated areas): Yes ____No _____
(v) How far is the nearest wetland (lakes, rivers, seasonally inundated areas)? __ km.
(vi) Area of high biodiversity: Yes _____ No _____
(vii) Habitats of endangered/threatened or rare species for which protection is required under Ethiopian national law/local law and/or international agreements: Yes _____ No _____
(viii) Others (describe): Yes _____ No _____

3. Rivers and Lakes Ecology

(a) Is there a possibility that, due to construction and operation of the sub-project, the river and lake ecology will be adversely affected? Attention should be paid to water quality and quantity; the nature, productivity and use of aquatic habitats, and variations of these over time.
Yes _____ No _____
(b) Is there a woreda office responsible for water management in the sub-project area?
Yes_____ No _____
If so, what is its name, and what are its specific responsibilities and how would it interact with PCDP sub-projects? Please describe.

(c) Are there small dams and other water management structures, and, if so, are they functioning properly?
Yes_____ No _____
If yes, please describe the current state of these water management structures, the institutional responsibilities for their maintenance, and potential need for repairs.

_____

4. Protected areas

Does the sub-project area (or components of the sub-project) occur within/adjacent to any protected areas designated by government (national park, national reserve, world heritage site etc.)?
Yes _____ No _____

If the sub-project is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area areas (e.g. interference with the migration routes of mammals or birds).
Yes _____ No _____

5. Geology and Soils

Based upon visual inspection or available literature, are there areas of possible geologic or soil instability (prone to: soil erosion, landslide, subsidence, earthquake etc.)?
Yes _____ No _____
Based upon visual inspection or available literature, are there areas that have risks of large scale increase in soil salinity?
Yes _____ No _____
Based upon visual inspection or available literature, are there areas prone to floods, poorly drained, low-lying, or in a depression or block run-off water?
Yes _____ No _____

6. Contamination and Pollution Hazards

Is there a possibility that the sub-project will be at risk of contamination and pollution hazards (from latrines, dumpsites, industrial discharges, etc.)?
Yes _____ No _____

7. Landscape/Aesthetics

Is there a possibility that the sub-project will adversely affect the aesthetic attractiveness of the local landscape?
Yes _____ No _____

8. Historical, Archaeological or Cultural Heritage Sites.

Based on available sources, consultation with local authorities, local knowledge and/or observations, could the sub-project alter any historical, archaeological, cultural heritage, traditional (sacred, ritual area) site or require excavation near same?
Yes _____ No _____

9. Resettlement and/or Land Acquisition

(a) Based on the results screening will involuntary resettlement, land acquisition, relocation of property, or loss, denial or restriction of access to land and other economic resources be caused by sub-project implementation?
Yes _____ No _____
(b) If yes, have consultations been carried out with potentially affected persons and relevant stakeholders?
Yes_____ No _____
What was the outcome of these consultations? Was the decision made to (i) change the design/location of the sub-project and therefore not requiring compensation; or (ii) retain the original sub-project design/location, thus requiring compensation of potentially affected persons? Please describe.

(c) If the decision was made to retain the original sub-project design/location, OP 4.12 Involuntary Resettlement is triggered and appropriate mitigation measures consistent with this World Bank Operational policy would have to be taken.

10. Blocking of Access and Routes or Disruption of normal Operations in the General Area

Will the sub-project interfere or block access, routes, etc. (for people, livestock and wildlife) or traffic routing and flows?

Yes _____ No _____

11. Noise and Dust Pollution during Construction and Operations.

Will the operating noise level exceed the allowable noise limits?

Yes _____ No _____

Will the operation result in emission of copious amounts of dust, hazardous fumes?

Yes _____ No _____

12. Degradation and/or Depletion of Resources during Construction and Operation

Will the operation involve the use of considerable amounts of natural resources such as sand, wood, stones (construction materials, water spillage, land, energy from biomass, etc.) or may lead to their depletion or degradation at points of source?

Yes _____ No _____

13. Solid and Liquid Wastes

Will the sub-project generate solid and/or liquid wastes (including human excreta/sewage, and hospital/medical waste)?

Yes _____ No _____

If "Yes", does the sub-project include a plan for their adequate collection and disposal?

Yes _____ No _____

As regards safe medical waste management, does the sub-project have a medical waste management plan to guide it in the selection and implementation of appropriate disposal methods?

Yes _____ No_____

If yes, who will be responsible for integrating its provisions for medical waste management into the sub-project? Please describe.

---

14. Occupational Health Hazards

Will the sub-project require large number of staff and laborers; large/long-term construction camps?

Yes _____ No _____

Are the sub-project activities prone to hazards, risks and could result in accidents and injuries to workers during construction or operation?

Yes _____ No _____

15. Public Health

(a) Is there any concern about **HIV/AIDS** in the area of the planned sub-project?

Yes _____ No _____

If yes, please indicate current efforts to address HIV/AIDS issues in the proposed sub-project area, or, make recommendations how such concerns should be addressed. Could the sub-project benefit from support through the ongoing HIV/AIDS Project? Are there any training needs in this regard? Please describe.

_____

(b) Is there any concern about **malaria** in the area of the planned sub-project?

Yes _____ No _____

If yes, please indicate current efforts to address malaria issues the proposed sub-project area, or, make recommendations how such concerns should be addressed.

Is there a Vector Management Plan or equivalent that could be implemented under the proposed sub-project?

Yes_____ No _____

If yes, please describe who will be responsible for implementing this plan under the proposed sub-project, and whether any training in this regard should be provided.

_____

(c) Is there any concern about ineffective pest management in the area of the planned sub-project?

Yes _____ No _____-

If yes, please indicate current efforts to address impacts due to unsafe pest management in the proposed sub-project area, or, make recommendations how such concerns should be addressed.

Is there a Pest Management Plan (PMP) which could be implemented under the planned sub-project?

Yes _____ No _____

If yes, please describe who will be responsible for implementing this plan under the proposed sub-project, and whether any training in this regard should be provided.

16. Operation and Maintenance

Will the sub-project require regular maintenance and/or repair

Yes _____ No _____

If yes, is there sufficient capacity at the community/Woreda levels to carry out effective operations and maintenance activities? Indicate types and extent of capacity building needs.

Yes _____ No _____

17. Public Consultation

Has public consultation, participation and prior and informed consent been sought?

Yes _____ No _____

Describe the consultation process that has taken place and list the outcomes and recommendations made by the participants.

PART C: Recommendation/Mitigation Measures

For all "Yes" responses, describe briefly the measures taken/proposed to this effect with the necessary budget-cost estimates. Environmental and social management plan (ESMP) including

the monitoring plan, RAP, PMP and other safeguards instruments should be prepared to manage all the impacts under each yes responses. The ESMP put systematically the impacts, the mitigation measures, the cost/budget required, monitoring plan, responsible body and the schedule to implement the plan. Refer respective annexes when preparing ESMP, including the monitoring plan, RAP, PMP and other safeguards instruments.

Annex 3. Environmental and Social Screening Form (ESF) for RLPs

The Environmental and Social Screening Form (ESSF) has been designed to assist in the screening of RLP financed livelihood interventions of RPLRP subprojects. This screening form is designed to guide the planning process and identify the potential negative impacts and recommend mitigation measures if any.

Name of the proposed intervention …….
Sector……
Name of the woreda----------
Name of the Kebele/communities ----------in which the intervention is to be implemented
Name of household----------sex----------
Name of the Approving Authority ……
Contact details of the person responsible for filling out this ESSF:
Name: ……..
Job title:……
Telephone numbers:……; ……..
Fax Number:
E-mail address
Date:
Signature:

PART A: Brief description of household livelihood diversification interventions

Please provide brief description of the proposed households' livelihoods diversification activities or enterprise**.** Describe the location, site and surroundings. Describe how it will be implemented including technical supports and training and resources required.

Part B. IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL NEGATIVE IMPACTS

Investments under Rural Livelihood Program such as livestock rearing, livestock fattening, dairy production, marketing livestock and livestock products, fish production, mining, cash crop production etc. and other off-farm business may cause some negative impacts. Thus, these sub-projects will be subjected to environmental and social screening during the planning stage, and appropriate steps will be taken based on the results of the environmental and social screening process outlined as follows.

Will the interventions lead to loss of cultivable land, loss of grazing land, loss of resources like water and loss of traditional livelihoods? Yes _____ No _____ if yes what mechanisms devised ----------

---

May the proposed intervention drive the conflict or exacerbating conflict within the community? Yes _____ No _____ if yes what mechanisms devised ----------

---

Will the operation of household livelihood interventions involve the considerable clearing of natural vegetation that may lead to degradation of forest /bushes?

Yes _____ No _____ if yes what mechanisms devised----------

Does proposed household livelihood diversification activity or modern technology prone to drought risks that damages the livelihood of the household? Yes----------,No---------- if yes describe mitigation mechanism----------

Does proposed household livelihood diversification activity or modern technology can create vector for malaria **infestation** in the area? Yes _____ No _____ If yes, please indicate current efforts to address malaria issues in the area, or, make recommendations how such concerns should be addressed.

Will the proposed household livelihood diversification activity (like livestock fattening and livestock rearing), modern technology or business enterprise generate solid and/or liquid wastes that possible affect heath of household or neighboring households? Yes _____ No _____.

If yes, describe measures for waste management ----------

Will the livelihood diversification/enterprise requires skill for implementation, regular maintenance and/or repair? Yes----------No----------

If yes, are there sufficient capacity at household levels to carry out effective operations and maintenance activities? Indicate types and extent of capacity building needs.----------
---

Key concepts emphasized as sustainable livelihoods principles such as the idea that "poor people themselves should be key actors in identifying and addressing livelihood priorities .Hence, Has household consultation and participation been sought for selection of livelihood diversification interventions? Yes _____ No _____ Describe the consultation process that has taken place and list the recommendations made by the household head and members
---

May proposed livelihood intervention decrease women's decision making power and participation in the implementation?
Yes---------- no ---------- if yes describe measures to be taken avert the negative impact----------

Poor household may not practice improved technologies because they perceive them as more management intensive; require more inputs such as labor and finance. May the proposed technologies/ enterprise require more intensive management or household labor? Yes----------
---------- No.---------- if yes describe how the household will come up to solve the problem-----
---

Does proposed household enterprise fit in with existing household's livelihood strategies? Yes---
----------,No---------- If yes what aspect of the household fit with the proposed interventions?----------
---

Household interventions that reduce labor requirements, especially for women, may allow households to diversify into other income-earning activities or devote more time to childcare, or be more suitable for families with one or more members who are sick—an especially important consideration with the rise of HIV/AIDS. Hence, will technologies/ household interventions require many purchased inputs/ or more women labor?
Yes---------- No---------- if yes describe recommendable solutions ----------
---

May enterprise adversely affect vulnerable people (e.g., elderly poor, physically challenged, women, particularly head of households or widows, etc.) living in the area?
Yes----------No----------If yes describe measures to be taken----------
---

This form has been signed after Project approval:
Qualified Member of the Woreda Development Committee
(Concerned sector office)

Name _____ Signature----------Date----------
Qualified member of the Mobile Support Team: _____
Name _____ Signature----------Date----------

Recommendation/Mitigation Measures:

For all "Yes" responses, describe briefly the measures taken/proposed to this effect with the necessary budget-cost estimates. Environmental and social management plan (ESMP) including the monitoring plan. Refer annex 5 for the ESMP.

Annex 4: Environmental and Social Field Appraisal Form

Part: Identification

1. Subproject Name:
2. Subproject Location:
3. Reason for Field Appraisal:
4. Date(s) of Field Appraisal:
5. Field Appraisal Officer and Address:
6. DA Representative and Address:
7. KDC Representative and Address:

Part 2: Description of the Subproject

8. Subproject detail: Provide details that are not adequately presented in subproject application.

Part 3: Environmental and Social Issues

9. Will the subproject:

Need to acquire land?	Yes	No
Affect an individual or the community's access to land or available resources?		
Displace or result in the involuntary resettlement of an individual or family?		

If "Yes", tick one of the following boxes:

The Resettlement Action Plan (RAP) included in the subproject application is adequate. No further action required.

The RAP included in the subproject application must be improved before the application can be considered further.

A RAP must be prepared and approved before the application can be considered further.

10. Will the subproject:

Encroach onto an important natural habitat, forest?	Yes	No
Negatively affect ecologically sensitive ecosystems?		

If "Yes", tick one of the following boxes:

The Environmental and Social Management Plan (ESMP) included in the subproject application is adequate. No further action required.

The ESMP included in the subproject application must be improved before the application can be considered further.

An ESMP must be prepared and approved before the application can be considered further.

11. Are there vulnerable groups living in the subproject area that could benefit from, or be adversely affected by, the subproject?

Yes	No

If 'Yes", tick one of the following boxes:

A plan for the vulnerable group included in the subproject application is adequate. No further action required.

A plan for the vulnerable group included in the subproject application must be improved before the application can be considered further.

A plan for the vulnerable group must be prepared and approved before the application can be considered further.

12. Will this subproject involve or introduce pesticides?

Yes	No

If "Yes", tick one of the following boxes:

The Pest Management Plan (PMP) included in the subproject application is adequate. No further action is required.

The PMP included in the subproject application must be improved before the application can be considered further.

A PMP must be prepared and approved before the application can be considered further.

13. Will the subproject involve?

Provision of laboratory chemicals/reagents	Yes	No
Construction and/or rehabilitation of latrines, septic or sewage systems?		
Production of waste (e.g. slaughterhouse waste, veterinary clinic waste, etc.)?		
Application of fertilizer?		

If 'Yes", tick one of the following boxes:

The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.

The measures described in the application for managing the potential adverse environmental effects of these activities are not adequate. The application need to be prepared and improved before the application is considered further.

The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An Environmental and Social Management Plan must be prepared and approved before the application is considered further.

14. Will the subproject involve or result in:

Diversion or use of surface waters?	Yes	No
Construction of diversion weir, micro-dam?		
Construction of water supply structures (eg. Bore hole)?		
Construction of water harvesting structures?		
Construction of shallow wells/hand dug well?		
Construction of market center?		

If 'Yes", tick one of the following boxes:

The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.

The measures described in the application for managing the potential adverse environmental effects of these activities are not adequate. The application need to be prepared and improved before the application is considered further. The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An Environmental and Social Management Plan must be prepared and approved before the application is considered further.

15. Will the subproject involve:

Construction of biophysical soil and water conservation measures?	Yes	No
Construction of gully rehabilitation structures?		
Introduction of new plant species?		
Removal of native plant/tree species?		

If 'Yes", tick one of the following boxes:

The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.

The measures described in the application for managing the potential adverse environmental effects of these activities are not adequate. The application need to be prepared and improved before the application is considered further.

The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An Environmental and Social Management Plan must be prepared and approved before the application is considered further.

16. Will this subproject rely on water supplied from an existing dam or weir?

Yes	No

If "Yes", tick one of the following boxes:

The application demonstrates that a dam safety report has been prepared, the dam is safe, and no remedial work is required. No further action is required.

The application does not demonstrate that a dam safety report has been prepared, the dam is safe, and no remedial work is required. A dam safety report must be prepared and approved before the application is considered further.

17. Will the subproject income generating activities like involve

Animal fattening?	Yes	No
Poultry production?		
Dairy farm?		
Dairy processing		
Apiculture?		
Honey production?		
Honey processing?		

If 'Yes", tick one of the following boxes:

The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.

The measures described in the application for managing the potential adverse environmental effects of these activities are not adequate. The application need to be prepared and improved before the application is considered further.

The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An Environmental and Social Management Plan must be prepared and approved before the application is considered further.

18. Are there any other environmental or social issues that have not been adequately addressed?

Yes	No

If "Yes", summarize them…… …… …… and tick one of the following boxes:

Before it is considered further, the application needs to be amended to include suitable measures for addressing these environmental or social issues.

An Environmental and Social Management Plan needs to be prepared and approved before the application is considered further.

Part 4: Field Appraisal Decision

The subproject can be considered for approval.

Based on a site visit and consultations with both interested and affected parties, the field appraisal determined that the community and its proposed subproject adequately addresses environmental and/or social issues as required by the Project's ESMF.

Further subproject preparation work is required before the application can be considered further.

The field appraisal has identified environmental and/or social issues that have not been adequately addressed. The following work needs to be undertaken before further consideration of the application:…… …… ……..

All required documentation such as an amended application, ESMP, RAP, or PMP/IPMP will be added to the subproject file before the subproject is considered further.

Name of field appraisal safeguard specialist (print): ……

Signature: ..... Date: .....

Annex 5: Terms of Reference for ESMP

The ESMP should be formulated in such a way that it is easy to use. References within the plan should be clearly and readily identifiable. Also, the main text of the ESMP needs to be kept as clear and concise as possible, with detailed information relegated to annexes. The ESMP should identify linkages to other relevant plans relating to the project, such as plans dealing with resettlement or indigenous peoples issues. The following aspects should typically be addressed within ESMPs.

Contents of Environmental and Social Management Plan

Description of the subproject

The subproject description should be based on the project feasibility study. Not all the detailed subproject information needs to be included as much of it is unnecessary for the environmental review. The subproject description should present a condensed description of those aspects of the subproject likely to cause environmental effects. The subproject should be described in terms of its basic activities-series of activities to carry out laboratory analysis, location, layout, and schedule (in terms of the project life cycle). This subproject description section of the report should furnish sufficient details to give a brief but clear picture of the following:

- Type and nature of the subproject.
- Need for the subproject.
- Location (use maps showing general location, specific location, subproject boundary and subproject site layout).
- Size or magnitude of operation, including any associated activities required by or for the subproject.
- Description of the subproject, including drawings showing subproject layout, activities of subproject, etc.

Description of the environment

A clear description of the organization delineation of the study area is important to define the area within which impacts must be considered. Once the study area is well defined, studies to gather the baseline conditions for valued environmental components must be developed. These components and values include description of to the extent applicable (but are not necessarily limited to):

- **Physical components:** topography, soils, climate, surface water, groundwater, rangeland, and etc… which are relevant to the subproject nature and type.
- **Ecological components:** fisheries, aquatic biology, wildlife, forests, rare or endangered species, wilderness or protected areas.
- **Socioeconomic and cultural environment:**
  - ✓ Details of the properties, houses, businesses etc. activities likely to be effected by land acquisition and their financial loses annually;
  - ✓ Data covering the community which is affected negatively by subproject including vulnerable groups or persons such as women, children, elderly, people below the poverty line should be described;
  - ✓ Identification of historical, cultural, religious and archeological sites.

- **Quality of life values:** socioeconomic values, public health, recreational components and development, aesthetic values, archaeological or historical treasures, and cultural values.

It is not necessary to gather information on all the components listed in such environmental component checklists. The baseline studies should concentrate on identifying those environmental components that may be significantly impacted by the project.
In addition to the basic physical features and infrastructure of the study area, it is valuable to have maps identifying vegetation types/communities, animal habitat, and major population centers.

Summary of impacts:
The predicted adverse environmental and social impacts for which mitigation is required should be identified and briefly summarized. Cross-referencing to the environmental and social impact assessment (ESIA) report or other documentation is recommended, so that additional detail can readily be referenced.

Description of mitigation measures:
The ESMP identifies feasible and cost effective measures to reduce potentially significant adverse environmental and social impacts to acceptable levels. Each mitigation measure should be briefly described with reference to the impact to which it relates and the conditions under which it is required (for example, continuously or in the event of contingencies). These should be accompanied by, or referenced to, designs, equipment descriptions, and operating procedures which elaborate on the technical aspects of implementing the various measures. Where the mitigation measures may result in secondary impacts, their significance should be evaluated.

Description of monitoring program
Environmental performance monitoring should be designed to ensure that mitigation measures are implemented, have the intended result, and that remedial measures are undertaken if mitigation measures are inadequate or the impacts have been underestimated within the ESA report. It should also assess compliance with national standards and World Bank requirements or guidelines.

The monitoring program should clearly indicate the linkages between impacts identified in the ESA report, indicators to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions, and so forth. Although not essential to have complete details of monitoring in the ESMP, it should describe the means by which final monitoring arrangements will be agreed. Responsibilities for mitigation and monitoring should be clearly defined. The ESMP should identify arrangements for coordination between the various factors responsible for mitigation.

Implementation schedule and reporting procedure
The timing, frequency, and duration of mitigation measures should be specified in an implementation schedule, showing links with the overall project implementation plans (PIP). Where implementation of mitigation measures is tied to the project legal agreements, these linkages should be outlined. For example, some mitigation measures may be made conditions for

loan effectiveness or disbursement. Procedures to provide information on the progress and results of mitigation and monitoring measures should also be clearly specified.

Cost estimates and sources of funds

These should be specified for both the initial investment and recurring expenses for implementing all measures contained in the ESMP, integrated into the total project costs. Where practicable, decisions regarding appropriate mitigation measures should be justified by an economic evaluation of potential environmental impacts, aimed at:

- Measuring the cost-effectiveness of different mitigation options where a project is required to meet a set of environmental standards or achieve specific environmental objectives
- Determining the appropriate level of mitigation where there is scope for a trade-off between environmental quality and the costs (and benefits) of achieving it
- Internalizing the economic value of residual impacts or intended environmental improvements into the final economic appraisal of the project.

It is important to capture all costs—including administrative, design and consultancy.

The ESMP table should look as follows:

	Potential Impacts	**Mitigation/ Enhancement Measures**	**Monitoring Parameter**	**Responsible Entity**	**Implementation Schedule**	**Cost and Source of Funds**
Pre-Construction Phase						
Construction Phase						
Operation and Maintenance Phase						

Summary of the Environmental Management Plan for RPRLP

Project Component	**Project Activities**	**Project Impacts**	**Mitigation Measures**	**Project Phase**	**Surveillance**		**Mitigation Cost (USD)**
					Responsible Entity	**Frequency**	

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
Component 01: Natural Resource Management	Rehabilitation and Rehabilitation of water facilities	Safety of dam for users; Soils erosion from loose soils; Loss of vegetation from site clearance; Management of cut to spoil materials; Management of construction waste at end of the project works; Land degradation from animal watering and at the dams; Potential spread of disease in livestock and humans; Creation of borrow pits; May trigger some impacts on physical cultural resources such as graves amongst others; and Complaints over compensation for borrow and dump sites for cut to spoil materials.	Possibilities of fencing dams; Vegetation planting on the embankments; Securing dump sites for disposal of cut to spoil materials; Site restoration and clean up at the end of the project; Routine cattle vaccination programmes; Restoration of borrow pits; Stock piling top soil for restoration of borrow areas; With minimal restoration, some of the borrow sites could be sources of water for livestock;	Operational Construction Operational/ Construction Construction Operational Construction	DEOs/ DCUs/ District Engineers DEOs/ DVO /DCUs DEOs/ DVO/ DCUs DEOs/ DVO/ DCUs DEOs/DVO/DCUs DEOs/ DVO/ DCUs	Bi-Weekly Bi-Weekly Bi-Weekly Bi-Weekly Bi-Weekly Bi-Weekly	All the costs for mitigation measures to be embedded under project costs

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
			PCR Chance Finds Procedures have been prepared to remedy such issues; Compensation for the borrow areas and dumpsites as per available law and policies; and Conducting ESIAs and Project Briefs.				
	Rehabilitation of watersheds	Rehabilitation work can temporarily deny users access to the watersheds; Cutting of vegetation Burning of old grass and shrubbery Seeding with good quality grass species	May be necessary to phase rehabilitation work to allow communities access and use of watersheds; Restrict clearance of site to areas required for the project;	Operation	Dept. of Disaster and Early Warning in OPM		

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
	Establishment of field agro-pastoral schools	Occupational health and safety of workers; Extraction and transportation of construction materials can have impacts on communities; May trigger some PCR concerns; and Management of construction waste and debris Accidents on workers	Provide workers with PPEs; Restoration of works and cleanup work areas; Application of Chance Finds Procedures for management of PCR concerns that may be triggered.	Construction	DEOs/ DVO/ DCUs	Monthly	Will be integrated in the project budget.
Component 02: Marketing and Trade	Rehabilitation of and construction of livestock markets	Potential land take issues; Extraction and transportation of construction materials; Waste management in the markets; Crime issues may go up during operations of markets; Management of condemned carcasses; May trigger some PCR concerns; Public health concerns on abattoirs operations; Issues of	A Resettlement Policy Framework is in place to guide land uptake issues; Establishment of waste management facilities e.g. toilets and contracting their maintenance to service providers; Application Chance finds	Construction Operations Construction Operation Operation	DEOs/ DVO/DCUs/District Engineers	Monthly	To be integrated into overall project budgets.

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
		HIV/AIDS; Dangers from errant animals once off-loaded in the markets; Potential spread of livestock diseases.	procedures during implementation; Disposal of condemned carcasses in special pits; and Errant animals will be in secure market fenced enclosures.				
	Rehabilitation of Border Check Points	Potential land take issues; Extraction and transportation of construction materials; Waste management in the facilities; Management of condemned carcasses; May trigger some PCR concerns; Issues of HIV/AIDS; Potential spread of livestock diseases.	Application of RPF guide land and compensation for construction materials; Establish toilets and have them routinely cleaned Use of pits with lockable tops and dosing such carcasses with waste engine oils; Sensitization in on HIV/AIDS; Involvement of	Construction Construction Operation Operation Operation	DVOs/DAOs/DEOs/Public Health Staff/District Engineers	Bi- Weekly	Part of project cost

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
			DVOs and DAOs in managements and operations of such facilities.				
	Rehabilitation and construction of regional laboratories	Risks with management of reagents and specimens; Accidents Disposal of waste reagents	Adopt international best practices in laboratory operations; Availing PPEs for laboratory staff; and Application of PMP as in Annex 5 in this ESMF.	Operation Operations Operations	DVOs/ DEOs and DAOs/ District Engineers	Monthly	Part of project budget.
	Rehabilitation of and construction of animal Holding/Auction Grounds	Potential land take issues; Extraction and transportation of construction materials; Waste management in the facilities; Management of condemned carcasses; May trigger some PCR concerns; Issues of HIV/AIDS; Issues of errant bulls that may be a risk to the stock; and Potential spread of livestock	Application of RPF procedures in place to address land take and compensation for materials extracted; Restoration of sites; Engage HI/AIDS service providers to conduct sensitization and awareness campaigns and issue	Construction Construction Operation Operations	DVOs/ DAOs/ District Engineers		

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
		diseases.	condoms; Animals to be checked and certified before transportation for sale.				
	Trade routes demarcation	Mapping process may deny users of such areas.	Phasing of the exercise to allow continuous use of such areas during implementation.	Construction	DVOs and DEOs	Monthly	Part of project budget.
	Demarcation of Watering points	Mapping process may deny users of such areas.	Phasing of the exercise to allow continuous use of such areas during implementation.	Construction	DVOs and DEOs	Monthly	Part of project budget.
	Grazing and Strategic Livestock feed reserves to be demarcated	Mapping process may deny users of such areas.	Phasing of the exercise to allow continuous use of such areas during implementation.	Construction	DVOs and DEOs	Monthly	Part of project budget.
Component 03: Livelihoods support	Communal Demonstration Permanent Crashes (galvanized iron) to be	Potential land take issues; Extraction and transportation of construction materials; Occupational health and	Application of RPF in guiding land take and construction materials related	Construction Construction	DVOs/ District Engineers DVOs/ DEOs	Monthly Monthly	These are to be part of project budget.

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
	constructed as well as crushes in selected sites constructed	safety of workers; Waste management during operation of the facilities; May trigger some PCR concerns during construction; Issues of errant bulls that may be a risk to the stock; Management of acarides; and Potential spread of livestock diseases.	issues; Provide workers with PPEs; Apply Best Construction Practices; Use of Chance Finds Procedures; Galvanized iron bars will hold back such bulls; and Acaricides handling and storage will be as in PMP in Annex 5; and S Veterinary staff to routinely monitor stock.	Construction Construction Construction /Operation Operation Operation	District Engineers District Engineers DVOs/ DAOs/ DEOs DVOs	Monthly Monthly Monthly Monthly	
	Establishment of Field Demonstration Plots to be established	Site clearances leads to loss of vegetation; Application of pesticides; and Safety of workers.	Restrict clearances; Apply PMP Guidelines in pest management; and Provide workers with PPEs.	Construction	DVOs and DEOs	Monthly	Part of project budget.
	Storage facilities in 12 districts	Potential land take issues; Extraction and transportation of	Application of RPF procedures in place to	Construction	DAOs/ DVO/ District Engineers	Monthly	Part of project budget.

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
		construction materials; Occupational health and safety of workers; Waste management during operation of the facilities; May trigger some PCR concerns during construction; Management of pesticides in keeping off rodents and pests; and Potential risks of snake bites inside stores.	address land take and compensation for materials extracted; Restoration of sites; Engage HI/AIDS service providers to conduct sensitization and awareness campaigns and issue condoms; Application of PMP Guide in management of rodenticides and pesticides; Keeping areas around stores clear of tall vegetation to keep off potential rodent predators such as snakes which are a risk to humans.	Construction Construction Operation Operations	District Engineers and DEOs HIV/AIDS service providers DAOs/ DEOs Communities	Monthly Monthly Monthly Continuous	

Annex 6: Guideline for Pest Management plan for Agriculture subprojects
Elements of a Pest Management Plan

1. **Pest Management Approach**

i. Current and anticipated pest problems relevant to the project

Common pest problems and estimated economic impact

ii. Current and proposed pest management practices

Describe current and proposed practices, including non-chemical preventative techniques, biological and chemical control. Is optimum use being made of agro-ecosystem management techniques to reduce pest pressure and of available non-chemical methods to control pests? Do farmers and extension staffs get sufficient information about IPM approaches that reduce reliance on chemical control?

iii. Relevant IPM experience within the project area, Woreda, region or country

Describe existing IPM practices, projects/programs, research

iv. Assessment of proposed or current pest management approach and recommendations for adjustment where necessary

Where the current or proposed practices are not consistent with the principles of an IPM approach, the discrepancies should be discussed and a strategy should be proposed to bring pest management activities into line with IPM.

2. **Pesticide Management**

i. Describe present, proposed and/or envisaged pesticide use and assess whether such use is in line with IPM principles.

Provide purpose of pesticide use, type of products used, frequency of applications, and application methods. Is pesticide use part of an IPM approach and is it justified? Justification of pesticide use under the project should (a) explain the IPM approach and the reason why pesticide use is considered, (b) provide an economic assessment demonstrating that the proposed pesticide use would increase farmers' net profits, or for public health projects, provide evidence that the proposed pesticide use is justified from the best available (probably WHO supported evidence) public health evidence.

ii. Indication of type and quantity of pesticides envisaged to be financed by the project (in volume and ETB value) and/or assessment of increase in pesticide use resulting from the project.

iii. Circumstances of pesticide use and the capability and competence of end-users to handle products within acceptable risk margins (e.g. user access to, and use of, protective gears and appropriate application equipment; users' product knowledge and understanding of hazards and risks; appropriateness of on-farm storage facilities for pesticide).

iv. Assessment of environmental, occupational and public health risks associated with the transport, storage, handling and use of the proposed products under local circumstances, and the disposal of empty containers.

v. Pre-requisites and/or measures required to reduce specific risks associated with envisaged pesticide use under the project *(e.g.: protective gear, training, upgrading of storage facilities, etc.).*

vi. Selection of pesticides authorized for use, taking into consideration: (a) criteria set at national (if there is any) or international, (b) the hazards and risks and; (c) the availability of newer or less hazardous products and techniques (e.g. bio-pesticides, traps).

3. Monitoring and Supervision

i. Description of activities that require local monitoring during implementation,

ii. Description of activities that require monitoring during supervision visits (e.g. regarding effectiveness of measures to mitigate risks; progress in strengthening regulatory framework and institutional capacity; identification of new issues or risks arising during implementation),

iii. Monitoring and supervision plan, implementation responsibilities, required expertise and budget.

Annex 7: Vector and Disease Control/prevention Framework

The RPLRP finances the procurement of vector and disease control drugs, chemicals, vaccines to improve the productivity of the livestock. The project will also finance the upgrading and strengthening of veterinary laboratory services through provision of laboratory chemicals, consumables and reagents. These laboratory chemicals, consumables and reagents which are used for the analysis of different pathogens; and vector and disease control/prevention drugs, chemicals, and vaccines are hazardous in their characteristics. They may pose serious environmental and human health impacts. They need proper handling, utilization, storage, transport and disposal. Waste (both solid and liquid) from veterinary clinics and laboratories are contaminated with hazardous chemicals/waste and infectious materials, and hence need proper management like any hazardous and infectious wastes. All ranges of the chemical and chemical waste management technologies and principles have to be followed and implemented.

The proper identification of the environmental, social and health impacts is important so as to define effective mitigation and management practices. This has a beneficial effect not only on overall environmental and social performance but also on the safety and health of the laboratory personnel and surrounding community.

When vector and disease control/prevention drugs, chemicals, vaccines, and consumables are procured and used, vector and disease control/prevention plan should address the following, but not limited to, issues:

- Have a plan in place for the use, handling, storage and disposal of drugs, chemicals, vaccines, consumables, empty containers;
- Maintain an inventory of the types and locations of hazardous materials and waste including unused and expired drugs, chemicals, vaccines, consumables;
- Each veterinary laboratory and clinics need to have health and occupational safety guideline;
- Have safety requirements in place for the handling, storage, and response to spills or exposures in the laboratory and store;
- Clearly segregate and label hazardous materials and waste;
- Treat and dispose hazardous materials and waste in accordance with applicable laws and regulations;
- Ensure that banned or unauthorized drugs, chemicals, vaccines, consumables are not used;
- Proper handling and disposal of unused drugs, chemicals, vaccines, consumables, packaging materials (i.e. sacks, plastic containers, etc.), and associated veterinary clinic and laboratory wastes.

For additional information related the management of the hazardous materials, veterinary clinics and laboratory chemicals, consumables, vaccines, associated wastes, refer annex 11 section 7. For further reading and application, the Bureau of Agriculture, Health and respective Bureaus and Woreda Offices of Agriculture and Health can also be contacted.

Annex 8: Monitoring and Evaluation of the implementation of ESMF

For the effective implementation of the ESMF a regular and period follow up is required.
The objective of this is to:

1. Alert project authorities (i.e. primarily) by providing timely information about the success or otherwise of the environmental management process outlined in this ESMF. This will ensure continuous improvement to AGP environmental and social management process (even beyond the project's life).
2. Make a final evaluation in order to determine whether the mitigation measures incorporated in the technical designs and the ESMP have been successful.

1. Monitoring of Environmental and Social Indicators

The goals of monitoring are to:

- measure the success rate of the project
- verify the accuracy of the environmental and social impact predictions
- determine the effectiveness of measures to mitigate adverse effects of projects on the environment.
- determine whether interventions have resulted in dealing with negative impacts
- determine whether further interventions are needed or monitoring is to be extended in some areas.

Monitoring indicators will be very much dependent on specific project contexts. Sample indicators may include:
Environment Indicators

xi) Loss of vegetation
xii) Land degradation
xiii) Compliance with laws and regulations.
xiv) Water quality in communities meets international standards,
xv) Proper waste management practices related to construction works,
xvi) Land restoration and revegetation after construction and or rehabilitation works,
xvii) Solid waste separation and recycling/disposal measures adopted in settlements,
xviii) Compliance with the Environmental Guidelines for Contractors
xix) Pest management practices by communities,
xx) Best practices in the implementation of program activities,

Social indicators

v) Population incomes
vi) Number of people resettled
vii) Environmental and social awareness
viii) Effect of program implementation on local household economies.

Two opportunities will be taken to build a simple system for the monitoring and evaluation of environmental and social impacts:

A. Initial proposals

The key issues to be considered in the RPLP subprojects include monitoring of water quality, soil erosion, land degradation, vegetation removal, soil acidification and salinization, wetland

drainage, occupational health & safety for those working in animal health clinic/post and soil testing laboratory, health problem, agricultural production, pest management, land acquisition, income generation and livestock health care and population influx.

Monitoring and surveillance of subprojects will take place on a *spot check* basis. The *spot checks* consist of controlling the establishment of mitigation measures. It is not recommended to collect large amounts of data, but rather to base monitoring on observations of project technicians and stakeholders to determine the trends in indicators.

B. Monitoring of participation process

The following are indicators for monitoring of the participation process involved in the project activities.

- Number and percentage of affected households consulted during the planning stage
- Levels of decision-making of affected people
- Level of understanding of project impacts and mitigation
- Effectiveness of local authorities to make decisions
- Frequency and quality of public meetings
- Degree of involvement of women and youth or disadvantaged groups in discussions
- Monitoring of implementation of mitigation plans lists the recommended indicators for monitoring the implementation of mitigation plans.

2. Evaluation of Results

The evaluation of results of environmental and social mitigation can be carried out by comparing baseline data collected in the planning phases with targets and post-project situations. A number of indicators would be used in order to determine the status of affected people and their environment (land being used compared to before, how many clean water sources than before, etc).

In order to assess whether these goals are met, the implementing agencies at Woreda, zone and regional level will indicate the following in the ESMP. The Woreda, zone and regional EPLAUA, and the regional safeguard specialist will review/check these issues based on the institutional arrangement indicated in this ESMF.

The federal safeguard specialist will give technical assistance for IAs in doing so. The following are some pertinent parameters and verifiable indicators/questions to be used to measure the ESMF process, mitigation plans and performance.

- Have the RPLRP-CU at federal level in collaboration with the regional and Woreda EPLAUA trained a local social and environmental specialist, and IAs focal person in charge of RPLRP activities in considering the social and environmental issues?
- Have the ESMP's and final subproject designs been cleared by the EPLAUA at Woreda and regional level, and by the safeguard specialist as indicated in the institutional arrangement indicated in this ESMF?
- At what rate are the civil works been monitored by RPLRP stakeholders?
- How many violations of the contractors/transporters have been recorded and at what rate are they occurring?
- How many RAPs have been fully executed before physical displacement of people?

- How many recorded grievance cases have been settled within one year?

3. Monitoring of ESMF implementation

In addition to the Project Reports and ESA studies required under the Ethiopian Environmental legislation, an Annual Audit on ESMF Implementation will be conducted by Woreda, zone and regional EPLAUA for those subprojects executed at their respective level. All implementing agencies should conduct their own regular internal ESMF implementation audit and submit to EPLAUA at their respective level. In addition, each large subproject that has been subject to an ESIA study (including RAP, Pest Management, etc) will also be required to produce an Annual Audit Report at regional level.

4. Monitoring Roles and Responsibilities

Implementing agencies at Woreda, zone and regional level have the lead responsibility to monitor the implementation of the ESMP including the IPMP and the RAP that they prepare. Environmental protection, land administration and use (EPLAUA) at Woreda, zone and regional level have also the responsibility to verify the monitoring report prepared by the implementing agencies at their respective level.

Environment and Social safeguard specialists at federal level also carry out his/her monitoring activity to track the progress of the implementation of the ESMF. Development agents (DAs), KDC and local community have also the responsibility to follow up the implementation of the ESMF at their locality. Donor representatives, independent ant consultants, Woreda TC, Zone TC and IAs have a role of giving technical support for the monitoring program.

5. Supervision

Supervising the implementation of ESMP, IPMP and RAP, will be the responsibility of EPLAUA at Woreda and regional level. Environment and Social safeguard specialists at Regional and federal RPLRP-CU will provide technical support, and facilitate the process.

Supervision of the ESMPs and other instruments covers monitoring, evaluative review and reporting. Generally, it is designed to:

- determine whether the subproject is being carried out in conformity with environmental safeguards and legal agreements,
- identify problems as they arise during implementation and recommend means to resolve them,
- recommend changes in project concept/design, as appropriate, as the project evolves or circumstances change and
- Identify the key risks to project sustainability and recommend appropriate risk management strategies.

It is vital that an appropriate environmental supervision plan is developed with clear objectives to ensure the successful implementation of an ESMP and other safeguards instruments.

Annex 9: ESIA Reporting Outline of Ethiopia

The environmental and social assessment report should be concise and limited to significant environment and social issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citation for any references used in interpreting those data. Detailed or uninterpreted data should be annexed or in separate volume.

An environmental and social impact statement (EISS) should contain the following information:

- ***An executive summary***
- ***List of consultants/specialists*** who participant on the study team: Names and qualification of members of the study team.
- ***Introduction*** (scope and methodology of the study, important environmental issues in the study, report structure)
- ***Description of the subproject including the scope of the scope of the project***
- ***Policy, legal and administrative requirements***
- ***Description of the environment*** (baseline environmental, socio-economic and health conditions such as fauna, flora, habitats, soil, water, air, cultural artifacts, and socio-cultural, socio-economic and health considerations).
- ***Analysis of alternatives***
- ***An account of the prediction and assessment of each impact at all stages of the project cycle.*** Information for each impact must be provided on: the methodology used; the magnitude of immediate and cumulative impacts – long and short term (expressed in appropriate units); whether it is adverse or beneficial; whether it is reversible or irreversible; likelihood of its occurrence "with and without" scenarios; the time span for which impacts are predicted and the geographic boundaries selected to define the study area
- ***Description of measures to prevent or reduce significant adverse impacts and enhance beneficial effects and an assessment of their likely outcome***.
- ***A description of residual impacts which cannot be mitigated or can only be mitigated partially.***
- ***Description of the environmental and social management plan (ESMP)*** including the monitoring plan. The mitigation and monitoring plan matrix indicated in ***Annex 9*** above should be included here including the ESMP tables (mitigation and monitoring tables) to summarize the ESMP.
- The ***budgetary implications and financial measures*** to be taken to ensure that mitigation measures can be adequately carried out.
- Statement on the extent of involvement of the interested and affected peoples ***(Public consultation and information disclosure).*** *Describe the consultation process that has taken place and list the outcomes and recommendations made by the participant.*
- Lists of references.
- Lists of appendices

Annex 10: Environmental and Social Guidelines for Contractors

General Environmental and Social Management Conditions

General

1. In addition to these general conditions, the Contractor shall comply with any specific Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP. If the Contractor fails to implement the approved ESMP after written instruction by the Supervising expert to fulfill his obligation within the requested time, the Owner reserves the Right to arrange through the Supervising expert for execution of the missing action by a third party on account of the Contractor.
2. Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an ESMP. In general these measures shall include but not be limited to:

   (a) Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.

   (b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.

   (c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.

   (d) Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.

   (e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.

   (f) Upon discovery of ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately report such findings to the Supervising Energy expert so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.

   (g) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.

   (h) Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.

   (i) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.

(j) Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.

(k) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.

3. The Contractor shall indicate the period within which he/she shall maintain status on site after completions of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.
4. The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan / Strategy to ensure effective feedback of monitoring information to project management so that Impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.
5. Besides the regular inspection of the sites by the Supervising Energy expert for adherence to the Contract conditions and specifications, the owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, as directed by the Supervising Energy Expert, the Contractor shall comply with directives from such inspectors to implement measures Required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment And compensation for socio-economic disruption resulting from implementation of any works.

Work site/Campsite Waste Management

6. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous Chemicals shall be bonded in order to contain spillage. All waste containers, litter and any other waste Generated during the construction shall be collected and disposed of at designated disposal sites in line with applicable government waste management regulations.
7. All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.
8. Used oil from maintenance shall be collected and disposed of appropriately at designated sites or be re-used or sold for re-use locally.
9. Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures: Such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.
10. Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.
11. If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the Supervising Energy Expert, of low land use value and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

Material Excavation and Deposit

12. The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.
13. The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.
14. New extraction sites:

a) Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 1km from such areas.
b) Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites
c) Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
d) Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
e) Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.

f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

15. Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.
16. Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.
17. The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable EMP, in areas approved by local authorities and/or the Supervising Energy expert.
18. Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the Supervising Energy expert and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

Rehabilitation and Soil Erosion Prevention

19. To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.
20. Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.
21. Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.
22. Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.
23. Locate stockpiles where they will not be disturbed by future construction activities.
24. To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.
25. Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
26. Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.

27. Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.
28. Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
29. Minimize erosion by wind and water both during and after the process of reinstatement.
30. Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
31. Re-vegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contributes to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

Water Resources Management

32. The Contractor shall at all costs avoid conflicting with water demands of local communities.
33. Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.
34. Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.
35. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities downstream, and maintains the ecological balance of the river system.
36. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
37. Wash water from washing out of equipment shall not be discharged into watercourses or roads drain.
38. Site spoils and temporary stockpiles shall be located away from the drainage system and surface run off shall be directed away from stockpiles to prevent erosion.

Cost of Compliance

39. It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item "Compliance with Environmental Management Conditions" in the Bill of Quantities covers these costs. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable EHS impact.

Annex 11: Environmental and Social Checklist

In this section the potential environmental and social impacts of all RPLRP subprojects and their associated potential mitigation measures are described in detail. Overall, the proposed RPLRP subproject activities/operations will impact positively on the biophysical environment, and on the rural community as well, as investments are planned through a participatory watershed development approaches and include various soil and water conservation measures. However, improper design and implementation of the project activities may have negative environmental and social impacts. As a result the following mitigation measures may be required to help avoid or reduce the potential adverse impacts from implementing the subprojects.

1. Small Scale Irrigation (SSI)

RPLRP improve the security of water availability in the project Woredas in order to enhance agricultural productivity including livestock through the use of improved water storage, conveyance, lifting and application technologies related to surface, ground and rain water management. For this, RPLRP will finance development and rehabilitation of water resources structures for crop production and to support dry season grazing reserves (Micro dam, river diversion weir, hand dug well, manual well tubing). The project also finance for the construction and rehabilitation of water resources for water supply (Micro dam, Sand dam, community water pans, bore hole, rehabilitation and upgrading of existing water supply structures).

Table 1 and 2 below detail the potential environmental and social impacts and mitigation measures for agricultural water and community water supply development and management subprojects. Table 1 is for (a) improvement and/or upgrading of traditional schemes; (b) improvement and/or rehabilitation of malfunctioning and partially functioning existing SSI schemes; (c) construction of new SSI schemes such as micro-dams, gravity and pump diversions, and groundwater development (shallow wells), whereas, table 2 is for construction of small dams and other water harvesting and storage structures for irrigation purpose.

Table 1: Potential environmental and social impacts of and mitigation measures for SSI projects

Potential impacts	Potential mitigation measures
Waterlogged soil (Vulnerability to water logging) due to overwatering; inadequate drainage	• Assess soil characteristics and either avoid or provide adequate drainage for areas prone to water logging • Use good irrigation management, matching water demand and supply by location • Design a high water-efficient irrigation system/methods like drip irrigation systems • Encourage farmers to value water resources by establishing a system of water user fees tied to consumption • Use of lined canals or pipes to prevent seepage wherever applicable • Regulation of water application to avoid overwatering (including controlled turn-out to allow cutting off water supply to irrigation ditches)
Water storage requirement and viability (soil permeability)	• Test the soil percolation and ensure and impermeable layer in the structure design
Salt build-up on irrigated land	• Assess the potential for high salinity and employ aalternative irrigation methods and schedules

Potential impacts	Potential mitigation measures
	• Install and maintain subsurface drainage system • Incorporate soil additives. Add gypsum to either the irrigation water or the soil before irrigating • Plant salt-tolerant catch crops
Crops wilting or dying us a result of Changes to soil chemistry, including acidification and alkalization	• Monitor soil chemistry. • Identify indicator plant species. • Consult soil scientists. • Apply soil nutrients, conditioners and chemicals where feasible.
Soil erosion (furrow, surface)	• Proper design and layout of furrows or field avoiding too steep a gradient • Land levelling • Design of terraces on hillside minimizing surface erosion hazard
Scouring of canals	• Design of canal system to minimize risk and use of lined canals
Clogging of canals by sediment	• Design and management of canals to minimize sedimentation • Provision of access to canals for removal of weeds and sediments • Measures to minimize erosion on field
Clogging of canals by weeds	• Design and management of canals to minimize weed growth • Provision of access canals for treatment and removal of weeds
Dry wells for drinking water and irrigation	• Implement different ground water recharge activities like water conservation work/watershed management • Limitation of withdrawal so that it does not exceed “safe yield” (recharge rate) • Encourage farmers to value water resources by establishing a system of water user fees tied to consumption
Water quality deteriorated or made unusable by upstream land use and pollutants discharge	• Control of land use in watershed areas • Prevention and control of pollution sources • Water treatment prior to use
Deterioration of river water quality below irrigation project and contamination of local ground water (higher salinity, nutrients, agrochemicals) affecting fisheries and downstream users	• Improved water management; improved agricultural practices and control of inputs (particularly biocides and chemical fertilizers) • Implementing soil erosion from the irrigation field to prevent washout of agrochemicals and fertilizer • Imposition of water quality criteria
Existing water sources supply/yield depletion	• Assess water supply and existing demands, and manage sustainability
Sensitive downstream habitats and water bodies	• Identify and avoid effects of diversion or extraction on downstream ecosystems that depend on the surface or groundwater supply
Reduced water quantity for downstream users, waterways and wetlands; intermittent streams run dry	• Reassess water available for irrigation; may need to irrigate a smaller area • Use pipes instead of open canals wherever feasible to prevent water loss from evaporation • Promote local and regional watershed management
Introduction or increase in incidence of water born or water related diseases	• Avoidance of stagnant or slowly moving water • Use of straight or slightly curving canals • Installation of gates at canal end to allow complete flushing • Filling or drainage of borrow pits along canals or roads

Potential impacts	Potential mitigation measures
	• Disease treatment
Land Acquisition	• Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	• Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Increased inequitable access to irrigation water	• Design and manage system to improve access by "tail-enders" (users whose fields are farthest from the water source). • Establish and enforce a volume-based water fee. • Improve system management, including maintenance of main canals.
Hinterland effect due to increased migration into area due to successful Project	• Ensure adequate social and other infrastructure to meet needs of immigrants
Informal land uses displaced or access restricted	• Avoid interference with informal land users, and take measures to provide access to alternative lands or resources
Increased social tensions/conflict over water allocation	• Establish a water users committee through the Kebele and equitable rules for water allocation
Environmentally sensitive areas disturbed	Identify and avoid forest, riparian and wetland habitats with particular biodiversity
Local incapacity/inexperience to manage facilities	• Establish an operations and maintenance manual, authority and provide training to persons responsible for operating the system
Local incapacity/inexperience with irrigated agriculture	• Provide training to farmers on sustainable irrigated agriculture

2. Dam, Ponds, Tanks and Other Water Harvesting Structures for Irrigation Purpose

Table 2: Potential environmental and social impacts of and mitigation measures for dam, ponds, tanks and other water harvesting structures for irrigation

Potential impacts	Potential mitigation measures
• Water pollution from construction and waste disposal • Soil erosion • Destruction of vegetation, sanitary and health problem from the construction camp	• Careful location of camps, buildings, borrow pits, quarries, spoil and disposal site • Precaution to minimize soil erosion • Land reclamation of pit/quarry site
Loss of land (agricultural, forest, range, wetland) by inundation to form reservoir	Sitting of dam to decrease loses; decrease of size of dam and reservoir; protect equal areas in region to offset losses
Formation of sediment deposit at reservoir entrance creating backwater effect and flooding and water logging upstream	• Sediment flushing, sluicing • Upper catchment treatment using soil and water conservation measures including area closure • Constructing silt trap
sPoor land use practices in catchment areas above the reservoir resulting in increased siltation and loss of storage capacity	• Land use planning efforts which include watershed area above the dam/reservoir/pond • Control of land use in watershed (especially prevention of conversion

Potential impacts	Potential mitigation measures
	of forest to agriculture)
Creation of quarry sites or borrow pits (to get selected materials for construction) that cause spread of vector born disease, safety hazard on the animals of the community	• Identify the most environmentally sound source of materials that is within budget • Develop logging, quarrying and borrowing plans that take into account cumulative effects • Site quarries and gravel pits so that they are not visible to travelers on the roads • Decommission/restore area so it is suitable for sustainable use after extraction is completed • Install drainage structures to direct water away from pit Discuss with local community the option of retaining quarry pits as water collection ponds for watering cattle, irrigating crops or similar uses
Scouring of riverbed below dam	Construction and maintenance of protection structure below the dam to protect the river bed scouring
Increase of water-related diseases	• Design and operation of dam/reservoir/ponds/other water harvesting structures to decrease habitat for vector • Vector control • Disease treatment
Loss of life and property of the downstream community, and erosion problem due to Dam failure	Implementing the small dam safety guideline prepared for the project
Loss of property and life entering into water harvesting structures/ponds	Fencing the structures
Water loss due from water harvesting structures/ponds/reservoir through seepage and/or evaporation	• Assess soil characteristics to avoid cracking of the water harvesting structures • Designing properly in such a way that loss of water is avoided
Conflicting demands for irrigation water use	Planning and management of dam/reservoir in context of the local development plans; equitable allocation of water among small holders farmers
Social disruption and decrease in standard of living of resettled people	Maintenance of standard of living by ensuring access to resources at least equalling those lost; provision of health and social services
Land Acquisition	• Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	• Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Environmental degradation from increased pressure on land	• Choice of resettlement site to avoid surpassing carrying capacity of the land • Increase of productivity or improve management of land (agricultural, range, forest management)
Environmentally sensitive areas disturbed	Identify and avoid forest, riparian and wetland habitats with particular biodiversity
Damage to downstream ecosystems from reduced water quantity	Use dam/reservoir operations to mitigate changes in flow regimes of rivers and prevent weeds and diseases

3. Watershed Management/Soil and Water Conservation

This activity will support implementation of best practices for soil and water conservation to improve soil fertility and soil moisture in the system. The implementation of sub-projects under this activity will be carried out within the larger framework of sustainable watershed development and management. In almost every case, application of soil and water conservation technologies is expected to have a positive impact on the environment, either by preventing erosion and run-off or by contributing to the rehabilitation of a degraded site.

Support under this activity will focus on protecting and rehabilitating watersheds where small-scale irrigation and/or water harvesting and micro-irrigation schemes are envisaged. Activities that will be supported by RPLRP include: Terracing (hillside terrace, bench terrace, soil and stone bund, fanyaaju) gully rehabilitation (check dams, gabions, reshaping, gully re-vegetation, SS dam construction, and cultivation with multi-purpose perennial trees, shrubs, and grasses), area closure, plantation of multipurpose trees, construction of waterways and cut of drain, nursery establishment, and groundwater recharge interventions in areas where groundwater development is ongoing or planned.

Potential environmental social impacts and mitigation measures

Given the above benefits of implementing watershed based soil and water conservation activities, due to improper planning, technology selection, design and implementation of the technologies; and lack of proper monitoring plan sometimes these activities may have their own negative environmental and social impacts.

Table 3: Potential environmental and social impacts and potential mitigation measures for watershed development projects

Potential impacts	Potential mitigation measures
Damage to downstream community and environment (land degradation, land slide, gully formation and flooding) as a result of failure of the physical soil and water conservation structures (Check dam, cut off drain, different terraces, SS Dam and other ground water recharge structures)	• Identify and evaluate the degradation processes • Select the appropriate soil and water conservation technologies to that specific situation (based on climate and watershed characteristics); properly design and follow up the construction of the technologies (flood protection structures-cut off drain, water ways, gully treatment structures-check dam, terraces and others physical structures) to avoid the breach of the structures • Avoid the generalized use of empirical approaches to select and apply soil and water conservation practices for all situations • Plan for the maintenance of the structures and to monitor the same, • Involve/participate local communities throughout the project cycle in order them own the project so that they can contribute to the project and keep it in a sustainable manner
New access (road) construction	Ensure drainage controls on new roads and rehabilitate temporary access following subproject implementation
Wet season soil disturbance	Schedule activities for the dry season
Potential for debris flows or landslides	Prepare a watershed plan that identifies and address drainage/slope instability
Removal of native plant/tree species	Protect and encourage regeneration of endemic species
Introduced plant/tree species invasion of native species	Ensure non-native species are compatible with native species

Potential impacts	Potential mitigation measures
Spread of plantation species outside of plantation becoming a nuisance, competing with native species and becoming weeds in agricultural fields.	Species choice to avoid ones that will grow out of control from desired site
Wildlife habitats or populations disturbed	Identify and avoid effects on habitats and migration routes of key species
Environmentally sensitive areas disturbed	Identify and avoid activity in forest, riparian and wetland habitats with particular biodiversity
Social disruption and decrease in standard of living of resettled people	Maintenance of standard of living by ensuring access to resources at least equalling those lost; provision of health and social services
Land Acquisition	• Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	• Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide access to alternative lands or resources
Insufficient capacity to manage catchment ponds	Establish a water users committee, where appropriate, and/or Kebele bylaws and provide training to water users
Insufficient capacity to prohibit or control open grazing	Establish a watershed committee, where appropriate, and/or Kebele bylaws and provide alternative sources of fodder
Insufficient capacity to manage new plantations/pastures	Establish a local committee, where appropriate, and/or Kebele bylaws and provide appropriate controls

4. Market Center Development and Management

To support a more competitive livestock sector, one which translates growing demand, both nationally and regionally, into livelihood opportunities for pastoralists, the project focus on demand-driven infrastructure investment packages to improve national systems for livestock marketing and trade. The main activities for the subproject are paving the market site, constructing market shed, constructing community warehouses, facilities (water supply and toilet) construction/upgrading, establishing market information center and constructing access roads and drainage structures.

Table 4: Potential environmental and social impacts and their potential mitigation measures

Potential impacts	Potential mitigating measures
New access (road) construction	Ensure drainage controls on new roads and rehabilitate temporary access following subproject implementation
Absence of or delaying installation of the drainage structures which: • Cause soil erosion, gully erosion, land slide • Degrade water quality • Alter hydrology • Damage valuable ecosystems and habitats	• Install drainage structures wherever necessary during construction instead of after construction, and consider this during planning, design and construction • Stabilize outlet ditches (inside and outside) with small stone riprap and/ or vegetative barriers placed on contour, to dissipate energy and to prevent the creation or enlargement of gullies • Extend run out drains far enough to allow water to dissipate evenly into the ground • Visually spot-check for drainage problems by looking for

Potential impacts	Potential mitigating measures
	accumulation of water on road surfaces. Do this immediately after first heavy rains and again at the end of the rainy season. Institute appropriate corrective measures as necessary
Wet season soil disturbance	Schedule construction for the dry season
The generation of construction and demolition waste contaminate soil, groundwater or surface water from demolition waste containing residual amounts of toxic materials (e.g. leaded paint especially for tertiary market center)	Determine whether toxic materials are present. Manage as per the country law to manage the hazardous and solid waste
Produce areas of bare soil which cause erosion, siltation,	• Design infrastructure so that it will create least impact • Minimize disturbance of native flora during construction • Remove, without destroying, large plants and ground cover where possible • Use erosion control measures • Replant recovered plants and local flora as soon as possible
Spread vector-borne diseases when stagnant water accumulates in active or abandoned quarries or borrow pits and breeds insect vectors	• Identify the most environmentally sound source of materials within budget • Develop logging, quarrying and borrowing plans that take into account cumulative effects • Monitor adherence to plans and impacts of extraction practices • Fill in quarries and pits before abandoning • Control runoff into pit
Increased number of water users due to improvements	Assess water supply and existing demand, and manage sustainably
Contamination of soil and water from sewage/toilet and solid waste	• Site human waste and solid waste disposal systems to avoid surface and groundwater contamination, taking soil characteristics and historical groundwater and surface water conditions into account • Install adequate and appropriate sewage and solid waste disposal systems (e.g., use above-ground composting latrines in areas with high water tables)
Health hazards due to lack of sanitation facilities (water, sewage and solid waste disposal)	• Sanitation facilities must be included in the project design. • Ensure that all sanitation facilities are installed and running before the before the start of the center
Cultural or religious sites disturbed	Identify and avoid cultural or religious sites. If disturbance unavoidable, agreement on mitigating measures must first be reached with stake holders concerned (eg. Community, mosque, church). If excavation encounters archaeological artifacts, halt construction and notify relevant authorities.
Land Acquisition	• Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	• Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Informal land uses displaced or access	Avoid interference with informal land users, and take measures to

Potential impacts	Potential mitigating measures
restricted	provide access to alternative lands or resources
In-migration/settlement induced by facilities development	Control unplanned settlement near the facilities
Local incapacity/inexperience to manage facilities	Establish/strengthen local committees, where appropriate, through the Kebele and provide appropriate procedures and training to maintain the facilities

5. Livestock breed improvement

RPLRP will support to provide improved technologies and livestock breeds to improve the productivity of the livestock sector. The project will finance for the provision of improved animal breeds. Related to this activity, the project also finances for the construction of breed improvement centers.

The environmental policy of Ethiopia under section 3.3 (c) states that all biological material which is self-regenerative and impossible to control once allowed to get out of control may result in the most insidious and damaging form of pollution which is biological pollution, thus the importation and use of biological material including those genetically engineered should be under stringent regulations. In the environmental impact assessment guideline document (Federal EPA, 2000) it is indicated that the introduction of new breed, species of crops, seeds or animals fall under ***schedule 1*** activity which may have adverse and significant environmental impacts, and may, therefore, require full ESIA.

Potential environmental impacts

The introduction of exotic livestock breed may result in loss of genetic diversity in livestock species. Breeds may have traits conferring resistance to emergent or future pathogens, or have other favorable adaptations to local environments. The consistent replacement of local breeds with more productive imported ones can contribute to the extinction of that breed and of all the genetic diversity harbored within its population. The introduction of exotic livestock breed may also result in the introduction of new pathology.

Potential mitigation measures

Introduction of a new breed into an area should be approached with caution. The new breed may bring with it diseases that can decimate local livestock herds and wildlife. The long term full costs and benefits of introducing a given new livestock species into a particular environment should be assessed. The following issues have to be taken into account before introducing the exotic breed.

- Quarantine law has to be seriously followed to avoid the potential adverse consequences of exotic species introduction,
- Thoroughly research new species of livestock. Determine their grazing/browsing preferences and compare them to those of current livestock species,
- Pilot-test new breeds and species before introducing them in a broad program, and monitor their impacts over time,
- If local breeds can meet specified needs, strongly consider their use. In particular, even if local breed is a relatively low producer, weigh this drawback against the breed's disease resistance and hardiness in the local environment,

- Evaluate the risks of introducing new diseases that might be transferred to wildlife,

Table 5: Potential environmental impacts of and mitigation measures for construction of breed improvement centers

Potential impacts	Potential mitigation measures
The generation of construction and demolition waste contaminate soil, groundwater or surface water from demolition waste containing residual amounts of toxic materials (e.g., leaded paint)	Determine whether toxic materials are present. Manage as per the country law to manage the hazardous and solid waste
Health hazards due to lack of sanitation facilities (water, sewage and solid waste disposal)	• Sanitation facilities *must* be included in the project design. • Ensure that all sanitation facilities are installed and running before the center start work
Unsafe potable water supplies	• Ensure sitting of supply systems and choice of supply technologies to minimize health hazards • Conduct seasonal testing of water quality, particularly for coliform bacteria and arsenic. Assess long-term and seasonal shifts in water quantity and quality
Breeding grounds for insect vectors (e.g., standing water in borrow pits; demolition debris)	• Excavate and rebury trenches quickly. Arrange for construction or demolition debris to be permanently disposed of away from watercourses • Fill borrow pits or assure their drainage. Use shallow wells or streams for construction water rather than diverting natural flows to the construction site
Erosion during construction of houses and access roads	Soil conservation measures must be included in the design and implemented during construction.
Cultural or religious sites disturbed	Identify and avoid cultural or religious sites. If disturbance unavoidable, agreement on mitigating measures must first be reached with stake holders concerned (eg. Community, mosque, church). If excavation encounters archaeological artifacts, halt construction and notify relevant authorities.
Local incapacity/inexperience to manage facilities	Establish/strengthen local committees, where appropriate, through the Kebele and provide appropriate procedures and training to maintain the facilities
Land Acquisition	• Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	• Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide access to alternative lands or resources

6. Fertilizer use

Farmers use more fertilizer for their irrigated agriculture to increase agricultural productivity. Although the essential plant nutrients play a vital role in providing adequate food supplies and

protecting our environment, some pose an environmental risk with improper management. The two nutrients most often associated with mismanagement and non-point source environmental concerns related to fertilizer use are nitrogen (N) and phosphorus (P).

Much of the concern about nitrogen in the environment is due to the potential movement of unused or excess nitrate-N through the soil profile into groundwater (leaching). Because of its negative charge, nitrate-nitrogen is not attracted to the various soil fractions. Rather, it is free to leach as water moves through the soil profile.

Phosphorus has been associated with environmental pollution through the eutrophication of lakes and non-flowing water bodies. The symptoms are algal blooms, heavy growths of aquatic plants and deoxygenation. Since phosphorus is insoluble relative to other essential nutrients, environmental degradation is associated largely with phosphorus movement when soil erosion occurs. Except on some organic soils, very low concentrations of phosphorus are found in drainage waters as the result of leaching.

Fertilization causes few direct but many indirect effects which impair ecosystems. The eutrophication of rivers, lakes and other water bodies like wetlands is considered as one of the important environmental problems, generating or/and supporting oxygen deficiency, production of toxic NH_3, algal blooms, change in spatial distribution of water body organisms, increase and depletion of fish stocks, change in reproduction conditions for fish and aquatic fauna etc.

Potential mitigation measures

Prevention of soil erosion from the farm land and proper application and use of fertilizer, use of other soil fertility improvement technologies like using bio-fertilizer, conservation agriculture, improved agronomic practices, best management practices (BMP), and other mitigation measures should be designed to reverse the above mentioned effects.

Some of the BMPs that help to mitigate the environmental impact of fertilizer use are:

1. Conservation Tillage - the practice of leaving harvested plant materials on the soil surface to reduce runoff and soil erosion;
2. Crop Nutrient Management - managing all nutrient inputs helps ensure that nutrients are available to meet crop needs while reducing nutrient run off;
3. Conservation Buffers - using vegetation strips to provide additional barriers of protection which prevent potential pollutants running off into surface waters;
4. Irrigation Management - increasing irrigation efficiency can reduce nonpoint source pollution of ground and surface waters;
5. Erosion and Sediment Control - using practices to conserve and reduce the amount of sediment reaching water bodies, overall protecting agricultural land and water quality.
6. Use fertilizers wisely
    - Apply at the right time and in the right amounts,
    - Fertilizer with slow release nitrogen is better for the environment,
    - Get a soil test to see what the soil needs,
    - If more fertilizer is applied than the grass can utilize, it can wash into nearby streams and lakes,

By putting BMPs into practice, nitrogen and phosphorus losses from agricultural soils can be controlled. Implementing these BMP strategies is both economically and environmentally desirable for the farmer. The integration of these BMPs increases crop yield potential, input efficiency and improves profit potential.

7. Laboratory Chemicals/Reagents

In the PAD, it is indicated that the project will finance the provision of drugs and vaccines to improve the productivity of livestock. In this regard, the project will finance the provision/purchase of chemicals and drugs for vector borne diseases - the disease trypanosomiasis, tick borne diseases and other ecto-parasitic diseases). Sometimes, there will be unused and expired drugs, chemicals and vaccines in store. This has to be managed properly. It is also mentioned in the PAD that the project will finance the upgrading of the National Veterinary Laboratory Services through provision of laboratory chemicals and reagents and equipments.

These laboratory chemicals/reagents which are used for the analysis of different pathogens, as they are hazardous in nature, have significant environmental and health impacts. They need proper handling, utilization, storage, transport and disposal. Any waste from animal health care clinics and post, which have similar characteristics with that of domestic waste and generated in the laboratory, contaminated with hazardous chemicals/waste and sample fluid (blood) of the animals become hazardous and infectious, and need proper management like any hazardous and infectious wastes. All ranges of the chemical and chemical waste management technologies and principles have to be followed and implemented.

The proper identification of the environmental impacts related to laboratory operation is important so as to define effective mitigation and management practices. This has a beneficial effect not only on overall environmental performance but also on the safety and health of the laboratory personnel and related community.

Potential environmental impacts of laboratory chemicals and associated chemically loaded wastes

Although animal healthcare posts and clinics activities provide many important benefits to the community, they can also unintentionally do great harm through poor design and management of waste management systems. The waste generated from these institutions pose serious problem. If handled, treated or disposed of incorrectly it can spread disease, poison people, livestock, wild animals, plants and whole ecosystems.

Water Pollution

Animal health service laboratories use a wide range of chemicals, disinfectants and samples. Direct release, without treatment and segregation of any of these chemicals and hazardous wastes to the drainage/sewer system without treatment can contaminate water body and create health risks for the general public, directly or indirectly. Such pollution is also detrimental to aquatic life.

Air Pollution
The operation of laboratories may result in a number of hazardous emissions to the air from fume hoods and vents, sterilization / disinfection technologies; refrigerants (Ozone depleting substances) and treatment technologies (incinerators, if any). Open and incomplete burning of wastes can create hazardous air emissions such as dioxins.

Soil Contamination
The disposal of untreated and un-segregated solid waste (containing organic, degradable mixed with hazardous chemicals) can result in contamination of the soil..

Handling & Disposal of Chemicals and hazardous wastes
Improper handling of hazardous chemicals is a health hazard for the laboratory workers and its indiscriminate disposal can have environmental risks as detailed above. The same applies for other substances, such as untreated and expired chemicals, treated samples of body fluid of animals and soil samples, and sharps (needles, syringes, broken laboratory glassware etc). Indiscriminate dumping of wastes can also result in illegal and dangerous recycling of chemicals, sharps and other substances, which can become a public health hazard.

Potential mitigation measures for laboratory chemicals/reagents and associated wastes
Many of the pollution problems associated with laboratory wastes stem from the types of materials and chemicals used. Establishing good purchasing and procurement practices is the first step in effective pollution control. Ensuring the selection and implementation of environmentally sound and cost-effective treatment technologies is an important element in the process. The option for final disposal of infectious and hazardous will be decided in consultation with the environmental protection agency of the region. Planning of a waste management system will take into consideration pollution prevention, waste minimization and recycling activities.

The following potential mitigation measures in general are envisaged

- Have a plan in place for the use, handling, storage and disposal of hazardous materials and waste;
- Maintain an inventory of the types and locations of hazardous materials and waste;
- Each laboratory needs to have health and occupational safety guidelines;
- Have safety requirements in place for the handling, storage, and response to spills or exposures;
- Clearly segregate and label hazardous materials and waste;
- Treat and dispose hazardous materials and waste in accordance with applicable laws and regulations.

8. Animal Husbandry

The RPLRP will finance investments like income generating sub-projects. These include: animal fattening (cattle, small ruminants – sheep and goats), milk production, poultry production, and others. Animal husbandry plays a vital role in the rural economy by generating substantial income to rural population where employment is scarce. This is a type of subprojects that can be established successfully if they are sited, designed and operated properly; however, have the potential to cause environmental harm if not sited, designed and operated properly. When

planning for subprojects of this kind, one should consider the risk of environmental impacts and devise approaches to minimize or eliminate their occurrence through sitting, design, operation and maintenance of the facilities; and management of waste of all types.

Potential environmental impact

Contamination from manure

Livestock manure contains relatively high concentrations of nutrients, solids, enteric bacteria and other microorganisms, and organic material. The manure from small scale animal husbandry subproject operations is often discharged or "leaked" into water bodies, because it cannot be economically transported to replenish crop fields. When this occurs, the nutrients can cause eutrophication (rapid plant growth in water bodies), solids can create sedimentation, and organic material leads to oxygen depletion (BOD) of the water. There is an urgent need to review and assess current manure management practices and develop manure management guidelines that are appropriate for adoption by local animal producers.

Harm to human health

Where water is scarce, either chronically or seasonally, the diversion of water to sustain livestock potentially limits its availability for other purposes such as bathing, washing, cooking, and drinking. Moreover, as mentioned above, excessive contamination by enteric microorganisms, toxic pesticides to manage parasite or nitrates in may render water unfit for human consumption and may be especially dangerous to children. Pesticides or other vector control treatments used on livestock represent threats to the health of livestock managers, their families, and others exposed directly or through water use. These substances may be toxic, cause birth defects, alter children's proper development, promote cancer, or slowly poison one or more organ systems.

Odor

Concentrated manure stored at the farm site can generate strong and unpleasant odors, damaging the quality of life of nearby residents. This problem is most evident when site are located in densely populated areas.

Potential environmental and social impacts and their mitigation measures

Potential impact	Potential mitigation measures
Human health hazards • Introduction of diseases to humans and contamination of water bodies for human use by animal manures and urine; • Pollution and environmental disruption from inappropriate use of pesticide for livestock disease control; • Spreading of disease as a result of contact with contaminated domestic animals/birds, carcasses or slurry.	• Collect and store manure for composting and later application to fields; • Keep manure and urine away from household areas and water bodies; • Consider using a biogas system; • Provide protective clothes to minimize danger to workers applying pesticide; • Avoid overuse of pesticide; • Apply pesticides at recommended times and doses; • Consider integrated pest management; • Control farm animals, equipment, personnel, and wild or domestic animals entering the facility (e.g. quarantine periods for new animals, washing and disinfecting crates, disinfection and coverage of shoes before entry into livestock zones, providing protective clothing to personnel,

Potential impact	Potential mitigation measures
	and closing holes in buildings to keep out wild animals); • Sanitize animal housing areas; • Identify and segregate sick animals and develop management procedures for adequate removal and disposal of dead animals).
Water quality problem • Increased muddiness of surface water courses due to soil disturbances from grazing and increased soil erosion; • Contamination of surface and groundwater and negative effects on wildlife, vegetation, crop yields, aquatic ecology, and wildlife – by agrochemicals used to control pests and diseases; • Contamination of water supplies from leaching or runoff of animal urine and manures.	• Use biological pest controls before chemical controls to reduce adding toxic residues to the environment; • Fence off water bodies from grazing animals; • Mange manure and waste properly preventing from entering into water bodies.
Air quality problem • Mal odours arising from housing units and manure/slurry stores; • Mal odours arising from slurry spreading; • Mal odours due to transportation of livestock/slurry; • Volatilisation of ammonia.	• Consider composting of manure to reduce odor emissions; • Reduce emissions and odors during land application activities by applying a few centimeters below the soil surface and by selecting favorable weather conditions (e.g. wind blowing away from inhabited areas).
Climate change problem • Gases emitted from slurry/manure; • Methane (contribution to greenhouse gases); • Ammonia (contribution to acidifying gases).	• Improve the productivity and efficiency of livestock production (thus lowering the methane emissions per unit of livestock) through improvements in nutrition and genetics. This need special consideration from Woreda office of agriculture in providing technical support in this matter. • Supplement livestock diets with nutrients, as necessary (e.g. increasing the level of starch and rapidly fermentable carbohydrates, use of urea supplements). Production of feed supplements, may also, however, result in production of GHGs; • Control the temperature, humidity, and other environmental factors of manure storage to reduce methane and nitrous oxide emissions. This may involve use of closed storage tanks, or maintaining the integrity of the crust on open manure storage ponds / lagoons; • Consider various techniques to manage methane emissions from manure including controlled anaerobic digestion (to produce biogas), flaring / burning, use of biofilters, composting, and aerobic treatment. Use of anaerobic digestion may also reduce emissions of nitrous oxide.
Occupational Health and Safety • Exposure to physical hazards; • Exposure to chemical hazards from	• Instruct staff in correct livestock care, to reduce the incidence of bites and kicks; • Avoid and control exposure to any pesticide/chemicals;

Potential impact	Potential mitigation measures
disinfecting agents, antibiotic, hormonal products to control parasite; • Exposure to biological agents (bacteria, fungi, mites, and viruses transmitted from live animals, manure, animal carcasses, and parasites and ticks).	• Train personnel that apply chemicals/pesticide; • Inform workers of potential risks of exposure to biological agents and provide training in recognizing and mitigating those risks; • Provide personal protective equipment to reduce contact with materials potentially containing pathogens.

9. Small Slaughterhouse Facilities

Animal slaughter can take place on a wide variety of scales from small-scale operations occurring on farms or at butcher's premises to large-scale abattoirs processing thousands of animals a day. Generally, small-scale operations make limited use of automation and extensive use is made of all by-products meaning that there is little waste and pollution generated. However, unless these wastes and by-products managed properly, the environmental and social impacts related to these subprojects are serious.

The activities at slaughterhouses may include:

- Receiving area for live animals prior to slaughter;
- Retention area some hours (12-24 hrs) for animals prior to slaughter;
- Stunning and killing of animals;
- Bleeding of animals - the objective is to kill the animal with minimal damage to the carcass and to quickly remove as much blood as possible;
- Hide removal and treatment;
- Evisceration (removal of internal organs);
- Carcass dressing and washing;
- Handling and transport of carcasses and meat;
- Casings (intestinal tract) and edible offal separation;
- Refrigeration and/or frozen storage;
- Rendering of inedible products, e.g. bone, fat, heads, hair, and condemned offal into animal feed and tallow.

Key environmental, health and safety risks

The most significant environmental issues associated with small scale slaughterhouse operations are typically water consumption, emissions of high organic strength liquids to water, waste handling to control odour, waste disposal and recovery and the energy consumption associated with refrigeration and heating water.

Product Contamination

Meat can become contaminated as a result of the vegetable matter consumed by the grazing species (e.g. radioactive isotopes, dioxins and pesticides) through a process known as bio-accumulation and during processing and transport (microbiological contamination). Veterinary

inspection and screening of raw materials will identify any sick or diseased animals and food hygiene standards will need to be considered in order to reduce the risk of microbiological contamination.

- Carcasses awaiting collection should be appropriately stored to prevent putrefaction;

- Specified risk materials (SRM), i.e. tissues in cattle that may contain the agent responsible for transmission of diseases must be carefully separated from carcasses before processing into commercially valuable products and disposed of appropriately;

- Procedures should be in place to prevent processing of waste materials for same species feeding.

Water consumption

Slaughterhouses and Animal by Product processors typically use a lot of water. This is partly due to the hygiene requirements, which require potable water to be used for most washing and rinsing operations and mandatory cleaning criteria are set which limits opportunities for recycling and re-use of water.

In slaughterhouse, large quantities of fresh water is used for numerous purposes, including:

- ✓ livestock watering and washing;
- ✓ truck washing;
- ✓ scalding and hide finishing of pigs;
- ✓ washing of casings, offal and carcasses;
- ✓ transport of certain by-products and wastes;
- ✓ cleaning and sterilising of knives and equipment;
- ✓ cleaning floors, work surfaces, equipment etc.

Effluent discharge

One of the most obvious environmental issues common to all abattoirs is the discharge of large quantities of effluent. Abattoir effluent contains blood, fat, manure, undigested stomach contents and cleaning detergents. The volume of effluent generated is a reflection of the volumes of water used, since 80–95% of water used in abattoirs is discharged as effluent. Slaughterhouses effluents generally exhibit the following properties:

- high organic loads due to the presence of blood, fat, manure and undigested stomach contents;
- high levels of fat;
- fluctuations in pH due to the presence of caustic and acidic cleaning agents;
- high levels of nitrogen, phosphorus and salt (originates from manure and undigested stomach contents and from blood);

In urban areas it is normally discharged to municipal sewage treatment systems if there is otherwise it has to be treated on site using appropriate technologies and methods. In rural areas effluent may be treated on site and irrigated to land. If poorly managed, this irrigation could result in the pollution of groundwater.

Blood has the highest COD strength of any liquid effluent arising from slaughterhouses and its collection, storage and handling is a key issue for assessment and control, both in terms of odour and effluent treatment.

Discharge of the effluent directly to water bodies is discouraged as it can pollute them causing damage to wildlife and the effluent may also contain viruses, bacteria, and parasites which are harmful to humans and animals. The management of the effluent should be in consultation with the regional and/or Woreda EPLAUA having ESMP prepared.

Checklist of ideas for reducing effluent loads

- Maximise the segregation of blood by designing suitable blood collection facilities and allowing sufficient time for bleeding;
- Sweep up solid materials for use as by-products, instead of washing them down the drain;
- Fit drains with screens and/or traps to prevent solid materials from entering the effluent system;
- Use offal transport systems that avoid or minimise the use of water;
- Use water sprays with a pressure of less than 10 bar for carcass washing to avoid removing fat from the surface;
- Use dry cleaning techniques to pre-clean process areas and floors before washing with water;
- Segregate high-strength effluent streams, such as wastewaters from casings and paunch washing and treat them separately.

Energy Consumption

Energy is consumed in abattoirs in two ways:

- Thermal energy in the form of hot water used for cleaning, sterilizing and rendering;
- Electricity for refrigeration, lighting and production of compressed air.

By-products

By-products from the slaughter of livestock can cause environmental problems if not managed correctly. They are highly putrescible and can cause odour if not heat treated in a rendering process or removed from site within a day of being generated. For small slaughterhouses, the handling of animal by-products can be an important waste management issue.

Checklist of ideas for maximizing utilization of by-products

- Segregate all by-products;
- Ensure that by-products are not contaminated with water or materials that would limit or prevent their reuse;
- Store by-products correctly to maintain quality and maximize the viability of reuse opportunities.

Odour

Odour can be a serious problem for slaughterhouses if by-products and effluent streams are not managed correctly, particularly when the slaughterhouse is located near a residential area or in a hot climate. The main sources of atmospheric odour are:

- Untreated effluent;

- Animal wastes (skin, hides, hooves), unprocessed material and any other solid waste;

Sharp Edges and Machinery
Sharp tools are used to process meat including knives, mincers and packaging equipment. Cuts may also occur from sharp bones and equipment edges. All equipment should have safety guarding and workers should be issued with appropriate Personal Protective Equipment (PPE) to protect against unavoidable sharp items and edges.

Solid Wastes
The main wastes of small scale slaughterhouses includes blood, rumen contents, bones, horns, hoofs, urinary bladder, gall bladder, uterus, rectum, udder, fetes, snout, ear, meat trimmings, hide and skin trimmings, condemned meat, condemned carcass, esophagus, hair and poultry offal's (feathers, head). Only few of these by-products can be used directly.

Hazardous Substances
The cleaning and disinfecting of process areas and livestock areas uses materials that if inappropriately used and stored could result in chemical contact burns to employees, inhalation of harmful/toxic fumes or ingestion of harmful substances.
Ammonia, which is commonly used as a replacement for Chlorofluorocarbons (CFC's) in refrigeration systems, is toxic if inhaled at high concentrations and can cause frostbite when released to the atmosphere. Facilities using ammonia refrigeration should be aware of the potential hazards of ammonia releases and of the steps that can be taken to prevent such releases.

Potential environmental and social impacts and their mitigation measures

Potential Environmental Impacts	Mitigation measures
Health hazard from sharp Edges and Machinery	• Provision of personal protective equipment (PPE) that is fit for the task to prevent injury and maintain hygiene standards. Staff should be trained in the correct selection, use and maintenance of PPE; the training should include the reasons for its use and the dangers of not using it. PPE should be inspected regularly and maintained or replaced as necessary; • Train workers in correct use of machinery and safety devices; • Separation of people from moving equipment; • Install escape routes for employees in livestock handling areas; • Walking and working surfaces should be kept clean and dry and workers provided with anti-slip footwear. Floor cleaning should be scheduled for a time when work is not in progress or has finished; • Ensure correct cleanup programmes for liquids: restrict access to areas being cleaned down or where spillages have occurred.
Reception of livestock Effluent containing manure wastes significant contributor to phosphorus loads to pollute downstream water bodies.	Preventing run off from entering into the water bodies: manage the manure for soil fertility improvement by composting, use other feasible methods to manage it as mentioned above in the c***hecklist of ideas for reducing effluent loads section.***
Stunning and bleeding	• Every effort should be made to maximize raw blood collection

Potential Environmental Impacts	Mitigation measures
• If effluent with high organic load (especially if blood is discharged) is discharged to the effluent stream without pre-treatment, the effectiveness of any downstream effluent treatment system will be greatly affected due to the increased organic loads. It is also main contributor to nitrogen loads in effluent and hence cause eutrophication problems downstream; • Generation of fat loaded effluent blind screens in the effluent treatment system/in the sewer system, resulting in the need for greater use of hot water to clean them.	and its subsequent processing into blood meal or other value-added byproducts; • Design of the bleeding area should ensure that all blood is directed to the blood collection facility; • Fat interceptors should be installed on all drains and should be inspected and cleaned regularly; • See information mentioned above in the ***Checklist of ideas for reducing effluent load section.***
Splitting and evisceration • High water and energy consumption; • Downstream water bodies pollution from high organic load wastewater.	• Install high-pressure, low-volume spray nozzles; • Use high pressure rather than high volume for cleaning surfaces; • Use dry dumping techniques that avoid or minimize the use of water for the processing of paunches and stomachs, instead of wet dumping techniques; • Reuse wastewaters from carcass washing, viscera tables and hand wash basins for the washing of inedible products; • Use dry cleaning techniques to pre-clean process areas and floors before washing with water; • By-products should be transported dry on conveyors or in small containers with wheels; • See the information mentioned above in the ***Checklist of ideas for reducing effluent loads section.***
Paunch and stomach washing • Water consumption in the casing process can be very high; • Paunch manure contains high concentrations of organic solids and other pollutants causing downstream water bodies pollution.	• Fasting animals for a period of 12 to 24 hours prior to slaughtering; • First empty contents of paunches, without the use of water, and then rinsed using an efficient water spray system; • Install high-pressure, low-volume spray nozzles; • Use high pressure rather than high volume for cleaning surfaces; • Use dry dumping techniques that avoid or minimize the use of water for the processing of paunches and stomachs, instead of wet dumping techniques; • Reuse wastewaters from carcass washing, viscera tables and hand wash basins for the washing of inedible products; • Use dry cleaning techniques to pre-clean process areas and floors before washing with water; • Compost paunch manure for organic fertilizer; • See the information mentioned above in the ***Checklist of ideas for reducing effluent loads section.***
Refrigeration • High energy consumption; • Fugitive losses of refrigerants like CFCs or	• CFC-based refrigerants should be replaced by the less hazardous hydrochlorofluorocarbons (HCFCs) or, preferably, by ammonia; • Monitoring and fixing ammonia and glycol leaks immediately.

Potential Environmental Impacts	Mitigation measures
ammonia contribute to the depletion of the ozone layer; • Occupational, health and safety problem for workers from ammonia and glycol leaks.	
Casing and offal processing • Very high water consumption; • Effluent with very high organic load.	• Fasting of animals for a period of 12 to 24 hours prior to slaughter; • Water from the final rinse of the casings could be collected and • recirculated or used for cleaning the large intestines and bungs; • See the information mentioned above in the ***Checklist of ideas for reducing effluent loads section.***
Rendering • Effluent with very high organic load downstream water bodies pollution; • High odor generation may leads health problem to the surrounding dwellers; • High energy consumption.	• The effluent stream from rendering along with other high-strength; • streams, such as that from paunch and stomach dumping, could be collected and treated separately; • Install biogas digester; • See the information mentioned above in the ***Checklist of ideas for reducing effluent loads section.***
Cleaning • High water consumption; • Water pollution due to high organic load; • Chemical pollution water from usage of detergents for cleaning. There is also health hazard on staffs handling and managing the detergents (acids and bases).	• Dry cleaning before washing with water: implement procedures to ensure solid waste is removed from transport equipment and surface areas before rinsing and washing, e.g using scrapers, brooms and vacuum cleaners; • Install high-pressure, low-volume spray nozzles; • Use high pressure rather than high volume for cleaning surfaces; • Use dry dumping techniques that avoid or minimize the use of water for the processing of paunches and stomachs, instead of wet dumping techniques; • Reuse wastewaters from carcass washing, viscera tables and hand wash basins for the washing of inedible products; • Determine the required amount or concentration of detergents for effective cleaning and to reduce water consumption; • Use new detergents, some of which are more effective and more environmentally friendly than older ones. Alternative detergents should be evaluated on the basis of their cleaning performance as well as their cost and environmental attributes; • See the information mentioned above in the ***Checklist of ideas for reducing effluent loads section.***
Land Acquisition	• Avoid occupied land. Prepare procedures to ensure equitable resolution
Local incapacity/inexperience to manage facilities	• Establish system and committee to manage the facilities

10. Pest Management

Farmers use pesticides and other chemicals (herbicide, insecticide, fungicide and others) to increase agricultural productivity. Pesticides have played an important role in creating and

sustaining the agricultural revolution. Because of their toxic nature, however, pesticides pose a risk to humans, animals, and the environment when they are not handled properly. Absence of safety precautions can result in accidents, affecting the producer, the employees, their families, and farm animals, sometimes with serious consequences. Many pesticides, especially those available and used very heavily in the developing world, are *not specific* to the pest on which they are used, and are highly toxic to a broad array of living things. Those at greatest risk are those who experience the greatest exposures— typically smaller-holder farmers, farm workers and their families. These populations are also often the poorest members of society. Larger-holders are more likely to have received training on pesticide risk avoidance; however, laborers hired by them may not.

Table 6: Potential pesticide impacts on environmental and social components

Pesticide impact on	Potential impact
Water	• the death of fish and also have other ecological impacts • change in the organoleptic properties of water (its odor, taste) • negative effect on the process of oxygen formation by phytoplankton, on the vital activities of the inhabitants of the water ecosystems • impacts that transmitted along the food chains, and accumulate in food products • direct toxic action (acute or chronic toxicity) and indirectly (dimensioning of the content of oxygen dissolved in the water, a change in the chemical composition of water, extermination of water insects, etc) • disturbing aquatic ecology • Adverse effects on wetlands aquatic flora, etc.
Air: pesticides related air pollutants and their effects on health	• Respiratory illness, including chronic bronchitis and asthma; heart diseases • Heart diseases; respiratory problems including pulmonary emphysema, cancer, eye burning, headache, etc. • Pneumoconiosis, restrictive lung diseases, asthma, cancer, etc. • Lung irritation, viral infection, airway resistance, chest tightness, etc. • It causes immunotoxicity, carcinogenicity, asthma, anemia, unconsciousness etc. • Impaired lung function, chest pains, coughing, irritation of eyes, nose etc. • CO poisoning cause cherry lips, unconsciousness, death by asphyxiation etc. • It causes decreased hemoglobin synthesis, anemia, damage the nervous and renal (kidney) systems etc.
Soil	• Kill and severely reduce the essential soil macro- and microorganisms, including earthworms, insects, spiders, mites, fungi, essential mycorrhizae, and bacteria, thus reducing or stopping important nutrient cycling • Accidental spills on soil, which are usually associated with pesticide mixing and loading operations, can result in localized but severe soil contamination if not contained and dealt with rapidly and adequately
Human health	• Acute poisoning (death, light to severe sickness, respiratory problems, etc.) • Chronic poisoning (cancer, birth defects, reproductive disorders, skin problems, impairment of immune system capabilities, etc.)
Wild life and livestock (non-target species)	• population decline through the use of pesticides over large areas • Reproductive effect such as egg shell thinning , deformity and birth defects • Metabolic changes

Pesticide impact on	Potential impact
	• tumors and cancer • behavioral changes • abnormally functioning thyroid glands • Sub-lethal or lethal poisoning of mammals and other vertebrate • through extinction of the pest population -losses of food sources for many birds; particularly migratory species • toxicity to bees which are pollinators, with adverse effects on the production of certain crops • long-term negative effects on the reproductive processes of birds of prey and aquatic species of certain insecticides eg DDT) • high mobility and biological amplification of persistent pesticides
Socio-Economic Impact	*Positive impacts* • increased income and/or security of yield for farmers • Increased employment opportunities and • Improved food supply *Negative impacts* • Risk of human contamination to dealers, formulators, applicators and farmers • Health risks and associated economic impacts from contamination of surface; and ground potable water supplies contaminated by pesticides containing wastes • Acute health effects resulting from contamination of food and water stored in pesticide containers, from the transportation of pesticide and food stuffs in the same transportation means • Health risks from pesticide residues remaining on a crop after application • Loss of revenue from cash crops if these cannot be sold on world markets because of illegal residue levels • Crop losses due to the emergence of new and/or more resistant pests (insects, plant pathogenic fungi, bacteria), spread of disease vectors and emergence of a 'pesticide treadmill', whereby farmers obliged to pay more and more for a control program that does less and less good • In general short term benefit long term side effect

Major causes of pesticides impact on the environment and human health

The major causes of pesticide impact are related to lack of awareness, improper transport, storage, handling, use of pesticides, weak enforcement, lack of Integration, weak institutional setup, and poor networking and exchange of information among key stakeholder, obsolete pesticide accumulation, disposal problems, pesticide residues, and absence of ideal type of pesticides.

Potential mitigation measures

The Government of Ethiopia supports the use of integrated pest management approach (IPM) to reduce reliance on agricultural chemicals. Integrated Pest Management (IPM) refers to a mix of farmer-driven, ecologically based pest control practices that seek to reduce reliance on synthetic chemical pesticides. It involves (a) managing pests (keeping them below economically damaging levels) rather than seeking to eradicate them, (b) relying, to the extent possible, on nonchemical measures to keep pest populations low; and (c) selecting and applying pesticides, when they have

to be used, in a way that minimizes adverse effects on beneficial organisms, humans, and the environment.

Integrated pest management (IPM) is being promoted throughout the world as an alternative approach to pest management. Core elements of all IPM approaches are minimizing pesticide use and minimizing health and environmental risk when pesticides are used.

Model Approach to IPM

- Evaluate pests' impact before control programs are implemented, to identify pests, size of problems and possible natural controls
- Evaluate non-pesticide management options, including a range of preventive measures and alternative pest control methods (physical, mechanical, and biochemical)
- Evaluate whether synthetic pesticides are necessary or not, whether less toxic varieties are available for the purpose, and how to minimize exposure for users and the environment.

Potential Mitigating Measures for Pesticide Dangers

If there are no feasible alternatives to pesticides, take the following measures to mitigate and reduce their risks to human health and the environment. Note that risk is a function of both toxicity and exposure. Reducing risk means (1) selecting less toxic pesticides and (2) selecting pesticides that will lead to the least human exposure before, during and after use.

1. **Screening Pesticides**

The use of any pesticide should be based on an assessment of the nature and degree of associated risks, taking into account the intended users. With respect to the classification of pesticides and their specific formulations, the Bank refers to the World Health Organization's *Recommended Classification* of *Pesticides* by *Hazard and Guidelines to Classification.*

The Bank requires that the following criteria apply to the selection and use of pesticides:

a. They must have negligible adverse human health effects.
b. They must be shown to be effective against the target species.
c. They must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed at minimizing damage to natural enemies. Pesticides used in public health programs must be demonstrably safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them.
d. Their use must take into account the need to prevent the development of resistance in pests.
e. They do not fall in WHO classes **IA** and **IB**, or formulations of products in Class II if (a) country lacks restrictions on their distribution and use; or (b) they are likely be used by, or be accessible to, lay personnel, farmers, or others without training, equipments, and facilities to handle, store, and apply these products properly.

2. **Reduce exposure time or the degree of exposure**

Before using *(transporting, packaging and storing)*

Transporting

- Separate pesticides from other materials being transported
- avoid private distribution—it's dangerous
- Never transport leaking or badly deteriorated containers
- Do not transport food, beverages or animal feed together with pesticides. Load and unload pesticides very carefully to minimize the chance of dropping containers.

Packaging

- follow international and national norms and guidelines
- use packaging adapted to needs
- eliminate re-use of packaging materials (even when cleaned, pesticide containers are too dangerous to re-use
- The container for the product shall be of sufficient strength and shall provide all the necessary protection against compaction, atmospheric moisture, oxidation, loss by evaporation and contamination to ensure that the product suffers no deterioration under normal conditions of transit and storage, etc.

Storing

- develop strict guidelines for village-level storage
- ensure permanent, well-marked labeling
- follow and respect national norms
- follow and respect FAO norms
- use appropriate language and approved pictograms
- use and respect appropriate toxicology color
- should be located far from human dwellings, and personal use items
- should be sited far from rivers and bodies of water, to prevent chemical contamination from entering and poisoning the water
- should not be sited in an area subject to flooding, especially during seasonal rains
- be secured from public access
- have a warning sign affixed to the exterior door, entrance or gate of the storage facility
- have a floor or base that is protected from pesticide absorption

Labeling

The purpose of a labeling is to convey a message about what the product is, who makes it and how it may be used safely and effectively. Label should specifically indicate:

- hazard symbol
- Trade and chemical name
- Ingredient statement
- Type of formulation
- Net content of the package
- purpose for which it is to be used
- Name and address of manufacturer, distributor
- Registration or license number
- directions for use
- safety precautions
- warnings and statements of good practice
- Hazards to humans and domestic animals
- Environmental hazards
- Physical and chemical hazards
- first-aid instructions and advice to health personnel
- Storage and disposal directions
- Warranty statement

During use *(training should be continuous for farmers, application, protective equipments and clothing, mixing of chemicals, and others)*

Pre-application

- Read and understand labeled instructions and any other information provided with either the agrochemical, the application equipment or the protective clothing
- Assess the risks of application to people, animals and the environment and decide what action is necessary to reduce or eliminate them
- Ensure that the user is competent and that he or she has received effective training in application techniques and the precautions to be observed
- Arrange health monitoring as may be necessary for certain hazardous agrochemicals based on their frequency of use
- Check application equipment to ensure that it operates satisfactorily without leaking or spilling and is calibrated for the necessary application rates
- Check that protective clothing and other safety equipment including breathing apparatus, if required, is complete, is of the correct quality and is in good condition. Replace any items that are worn or missing. And is in good condition. Replace any items that are worn or missing
- Decide how the work is going to be done and set up an action plan to cover its implementation, together with any emergencies that may arise.
- Check that weather conditions are satisfactory, particularly to avoid excessive wind speeds and consequent spray drift
- Ensure the safe disposal of empty containers, tank washings and surplus pesticides

During application

- Do not apply agrochemicals without adequate training
- Wear appropriate protective clothing as prescribed on the label or information sheet for handling concentrated products
- Avoid blow-back from granule or powdered materials when transferring container contents into the application unit. A slow, steady release causes least disturbance of air and reduces the risk of particles becoming airborne and being inhaled
- Mix only the correct amount of agrochemical required for a particular task so as to avoid the need to dispose of any surplus.
- Handle containers carefully to prevent gurgling or spillage during pouring into an applicator. Pour correctly from large containers with the spout uppermost so as to allow air to flow into the container at the same rate as the contents flow out
- If two or more agrochemicals have to be mixed, ensure that they are compatible and without risk of a chemical reaction that would cause a "tank mix" operator hazard
- Do not eat, drink or smoke while applying agrochemicals
- Ensure that dangerous practices such as putting a blocked nozzle to the mouth to blow it clear are prohibited. Clean the nozzle with water or a soft probe, such as a grass stem

- Do not allow other workers in the field, particularly when pesticides are being applied. Take particular care to observe that children are neither allowed to spray nor are exposed to pesticides
- Take notice of changing weather conditions, such as an increase in wind speed. This would cause drift and could blow the spray towards sensitive areas such as a drinking-water supply, resulting in health hazards. It may also blow the spray towards the operator, causing an inhalation hazard.

After using *(k*now, respect and enforce any exclusion period after application-time during which humans, livestock, etc., must be kept away from the treated area; assure proper cleaning and rinsing off of; and develop a workable monitoring and evaluation system).
The following precautions have to be followed after applying the pesticide:

- Thoroughly wash hands, face and neck as well as other parts of the body which may have become contaminated. If gloves have been worn, wash them before removal
- Return unused pesticide to safe storage and safely dispose of empty containers and any surplus in the application equipment
- Decontaminate application equipment by washing it thoroughly. The washings should be drained into a soak-away or similar chamber to be safely confined and without risk to the environment.
- Decontaminate protective clothing by thoroughly washing items such as apron, boots and face shield. Launder the work clothing each day after spraying. Gloves should be washed inside and out and allowed to dry. Respiratory protection equipment should be wiped clean
- Bathe or wash thoroughly again after completing the above four actions.

Disposal of unused and obsolete pesticide, and empty pesticide containers
The safe management and disposal of pesticide-related waste (*unused and obsolete pesticide, and empty pesticide container*) should be provided and coordinated by regulatory authorities, pesticide distributors and suppliers. Other organizations that support and advise pesticide users, such as extension and health promotion services, non-governmental organizations (NGOs), agricultural colleges and schools, also have important roles to play.
Governments and their agencies, including ministries of agriculture, health, environment and education, are responsible for regulating the manufacture, import, distribution and use of pesticides. These responsibilities should be extended to include the management of pesticide-related waste products, including empty containers, which are often overlooked.
A mechanism has to be designed to collect all empty pesticide containers from farmers and safely disposed and never reused. It is extremely dangerous to use them for anything else. Consult the pesticide label, the manufacturer, or the manufacturer's representative for specific recommendations regarding container cleanup and disposal.
Management plan has to be prepared when there is the plan to use pesticide to mitigate all the impacts associated with the pesticide using the above mentioned measures. The implementation of the plan has to be supervised, monitored and audited, and monitoring plan has to be prepared.

Annex 12: The MoA's Small Dam Safety Guideline

Main Issues from the Dam Safety Guideline is summarized and presented below.

1. Introduction

Benefits which will accrue from the promotion and achievement of adequate dam safety practices include environmental protection, public confidence, and the commercial benefits to the owner of constructing and maintaining in a safe and insurable condition, what is usually a significant investment.

The owner of a dam is responsible for:

- employing a qualified engineer to design and implement the dam construction;
- safely operating and maintaining the dam;
- giving appropriate warnings if the operation or failure of the dam could cause damage;
- compensating damage caused by the operation or failure of the dam.

The overarching dam safety objective is to protect people, property and the environment from the harmful effects of mis-operation or failure of dams and reservoirs. To ensure that dams and reservoirs are operated and that activities are conducted so as to achieve the highest standards of safety that can reasonably be achieved, measures have to be taken to achieve the following three fundamental safety objectives:

- to control the release of damaging discharges downstream of the dam,
- to restrict the likelihood of events that might lead to a loss of control over the stored volume and the spillway and other discharges,
- to mitigate through onsite accident management and/or emergency planning the consequences of such events if they were to occur.

These fundamental safety objectives apply to dam and activities in all stages over the lifetime of a dam, including planning, design, manufacturing, construction, commissioning and operation, as well as decommissioning and closure.

2. Parties Involved

The main parties that are involved in dam are the owner or developer, the supervising body, the technical adviser/engineer, the contractor, and the public, who may be affected directly or indirectly by the dam.

The dam owner for small dams to be constructed by RPLRP is the Bureau of Water Resource. Dam owners are responsible for the safety and the liability of the dam and for financing its upkeep, upgrade, and repair. The common legal understanding is that the dam owner is the developer of the dam, and is therefore responsible for the potential impacts, which the impoundment of water may have on upstream or downstream life, property and environment. It is the owner who holds the various legal permits for the dam and is legally responsible for maintaining the dam in a safe condition and for operating it safely. For the detail of the parties involved and their roles and responsibilities, please consult the dam safety guideline.

3. Legal and Regulatory Framework

Ethiopia does not have specific dam and dam safety legislation or administration as some other developed countries do. These legislations require that all dams be periodically inspected to

ensure that their continued operation and use does not constitute a hazard to life and property downstream. Rather, there are some broader legal obligations under Ethiopian law which owners need to appreciate. The policies and legislations which are somehow related to dams and dam safety issues are listed described below.

- Ethiopian Water Resources Management Policy (1999)
- Ethiopian Water Resources Management Proclamation (Proclamation No. 197/2000)
- Water Resources Management Regulations
- Environmental Laws

  The environmental laws related to the dam construction are: Environmental Policy of Ethiopia (1997), National Conservation Strategy, Environmental Pollution Control (No.295/2002), Environmental Impact Assessment (No 299/2002), EIA Assessment Guideline Document in 2002 and EIA Procedural Guideline in 2003.
- Occupational Health and Safety law (Proclamation No.42/1993)

4. Dam Failure and Dam Hazard classification

Dam Failure

If a dam fail, the owner is likely to be held legally liable for all associated damage. To minimize the possibility of failure and the attached liability, the owner should use the services of a suitably qualified engineer to design and construct the dam; make periodic visual inspections of the dam; monitor conditions that may affect the safety of the dam; perform regular maintenance; carry out repairs where and when required to meet current design and construction standards; and have an experienced dam engineer investigate any unusual conditions which could result in partial or total failure.

The three major failures modes of small dams in Ethiopia are:

- Sedimentation behind dam : sediments deposited clog outlet and intake structures
- Seepage loss through foundation and embankment
- low catchment yield and low volume of stored water in dams

The most common causes for failure of small dams in Ethiopia would be as follows:

a) Design is not adequate (hydrological, geotechnical, hydraulic).
b) Very limited site investigations are undertaken and consequently understanding of site conditions is poor.
c) Embankment placement methods are substandard eg. soil compaction methods.
d) lack of watershed management practices
e) Maintenance or inspection frequencies are inadequate.

To avoid or minimize the problem, the dam owner (Bureau of Water Resource) has the responsibility to inspect safety of the dam periodically during all phases of the dam design, construction, and operation and maintenance.

Dam Hazard Classification

The destructive force unleashed by an uncontrolled escape of water stored behind a dam has the potential to harm people, property and the local environment. The consequential losses can include loss of life, socio-economic, financial and environmental losses. Measures can be taken

to reduce the risk to an acceptable level and that is what dam safety is about. For this ESMF, three dam hazard classification levels are adopted as low, significant, and high, listed in order of increasing adverse incremental consequences.

Dams assigned the low hazard potential classification are those where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property. Dams assigned the significant hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure. Dams assigned the high hazard potential classification are those where failure or mis-operation will probably cause loss of human life. The small dam safety guideline is intended for the owner of dams with hazard potential classification of Low.

5. Planning of Small Dams

There are some fundamental principles which should be applied through the investigation, design, construction and commissioning stages to achieve an adequate level of safety. The principles are:

i. the competence and experience of the owner's agents relative to the nature and dam hazard category of the dam, must be appropriate in all areas;
ii. there must be a cooperative and trusting relationship between the owner and technical advisers, and the designers must be given full control over decision making in critical areas;
iii. the owner must agree to apply the appropriate level of funding for investigations, design and construction to reduce the chances of critically important issues (particularly related to foundations) being not sufficiently well assessed or under protected;
iv. the designer/technical adviser has a duty not to compromise unduly due to financial pressures from the owner, developer or contractor;
v. continuity of key technical advice should be maintained throughout all stages of the dam from development, through design, construction and commissioning, to reduce chances of critical points of design philosophy and intent being misinterpreted during construction or commissioning.

Dam site investigation

Selecting the Dam Site

When choosing the location and size, the dam owner should also take into account what would happen if the dam failed suddenly and whether it would result in loss of life, injury to persons or livestock, damage to houses, buildings, roads, highways or railroads. The owner of the dam should ensure to avoid locating the dam where run-off from houses, dairies or septic systems can pollute the water.

Considerations at Investigation Stage

Technical Consideration

Site selection and site investigations are critical components to the success or failure of a dam. Regarding the technical consideration the following important aspects should be considered:

a. The catchment is the area of land from which run-off is to be collected. If it is the main source of water supply, make sure that it is capable of yielding enough water to maintain

both, the supply in the dam and the required releases over all periods of intended use. The catchment area however should not be too large, as it will then require a big and expensive overflow system (or spillway) to safely pass excess run-off from heavy rainfall without overtopping the dam.

b. Topographical features such as slope, width and height of dam, as well as reservoir capacity will influence construction costs.
c. Conducting site tests to establish the material properties for the embankment and foundation.
d. A good location for a spillway that will effectively handle runoff and minimize erosion.
e. Watershed activities that can affect the water quality or quantity of runoff.

Environmental Considerations

Dams with their associated reservoirs can have substantial environmental effects and any existing dam or new project must comply with the Ethiopian environmental and environmental legislations and associated licensing or permit requirements. It also complies with World Bank Safety of Dam Operational Policy (OP/BP. 4.37). It should be recognized at the outset that dam developments have effects extending beyond the immediate confines of the dam and inundated areas. For example;

- Reservoir slope stability may become a dam safety issue due to the risk of overtopping caused by large volumes of reservoir water being displaced by slope failures.
- Sitting of the dam/reservoir must take into consideration the local earthquake and faulting activity which may cause breaching of the dam
- Groundwater level changes may affect stability and land use around the reservoir margins and possibly adjacent to the downstream river, as a result of changed water levels.
- Trapping of sediments in the reservoir can result in upstream shoaling and loss of reservoir storage.
- Flora/fauna effects may occur in storage basin, downstream, and in passage around and through the dam.
- Minimum flow maintenance downstream of the dam to ensure the survival of flora and fauna, and to reduce causes of stream bed deterioration.
- Social development/changes to downstream use given the changed flood situation.

Dam Design

Embankment dams Design

The single most common cause of earthen dam failures is overtopping of the embankment. An undersized spillway will lead to overtopping; therefore spillway design is critical to reservoirs. The spillway must be located such that discharge will not erode or undermine the toe of the dam. If the banks of the spillway are made of erosive material, provision must be made for their protection. Consideration must be given to the hazard to human life and potential property damage that may result from the failure of the dam or excessive flow rates through the spillway. Further consideration must be given to the likelihood of downstream development that may result in an elevation of the hazard classification.

Extreme Events
Large earthquakes, storm/flood activity and failure of upstream dams can be considered extreme events. The risk of failure from these events is minimized by using engineering design standards and relevant guidelines incorporating adequate margins of safety. Emergency preparedness set up well in advance is the only available measure of reducing the impact when a dam failure is about to happen.

Sedimentation
The effective life of many of small dams is reduced by excessive siltation – some small dams silt up after only a few years. This issue is poorly covered in the many small dam design manuals that are available, as they mostly focus on the civil engineering design and construction aspects. Appropriate methods/tools have to be chosen to predict, and where possible reduce, siltation rates in small dams.

6. Construction of a Dam

The quality of construction is all-important to dam safety. As far as construction is concerned, the following requirements are necessary from the dam safety viewpoint:

- the contractors must be suitably experienced and committed to achieving the standards of work specified;
- the level of supervision of the works, quality assurance procedures and designer continuity, must be appropriate to the scale and complexity of the dam;
- the owner must recognize that inherent uncertainties may remain after design investigations and only be revealed during construction, and have funding in place to deal with costs arising from additional requirements identified during construction;
- any area identified in the design process as requiring confirmation by the designer during construction, must be totally under the designer's control, and no design change, however small, shall be made without the designer's review and formal approval;
- a suitably detailed design report and drawings showing the as-built structure of all components of the dam and foundation shall be developed as an on-going and integral part of the construction supervision process, and be prepared after completion of each component so that there is a reliable record to refer to at all times in the future.

Therefore, the dam owner should ensure all the above mentioned requirements are fulfilled and complied.

Selecting the contractor
The use of inexperienced contractors and/or inadequate supervision can develop into an expensive liability. Nothing can take the place of a reputable contractor, using appropriate equipment and experienced machine operators and working under supervision of an experienced engineer.

Construction Supervision
Construction supervision is an important phase of dam construction. Supervision is meant to ensure that the design factors and specification requirements have actually been included in the final product.

If foundation preparation, material selection, outlet/spillway installation and embankment compaction are not properly carried out then the safety of the dam will be compromised. So, for all small dam types (both earthen and rock fill) expected to be constructed, all the dam safety requirements applicable should be considered accordingly.

7. Safety Surveillance

Purpose of Regular Inspection

The purpose of a dam safety surveillance program is to avoid failure of the dam, by giving early warning of any kind of symptom of trouble as early as possible. It is the most economical and effective means an owner has of maximizing the long-term safety and survival of the dam. Its primary purpose is to monitor the condition and performance of the dam and its surroundings.

Frequency of Inspections

The frequency of inspection required for an effective program of surveillance depends on a variety of factors including:

- Size or capacity of the dam;
- Condition of the dam; and
- Potential for damage resulting from failure of the dam (represented by the hazard category).

Adoption of the inspection frequency for a particular dam is the responsibility of the owner, though professional advice should be sought for large dams or those categorized under significant and high hazard dams.

According to the dam safety guidelines prepared for AGP, the suggested inspection frequencies for small dams of less than 15 m height for the two levels surveillance (quick visual inspection and comprehensive examination) is presented in the table below and should be followed critically.

Quick Visual Inspection	
Dam Hazard Potential classification	
High	twice weekly
Significant	weekly
Low	fortnightly
Comprehensive Examination	
Dam Hazard Potential classification	
High	monthly
Significant	3-monthly
Low	twice-yearly

Special Inspections

Special inspections will be required after unusual events such as earthquakes, major floods, rapid drawdown or volcanic activity. Special inspections should enable the dam owner to become aware of faults before partial or total failure occurs. Times when inspections additional to those above are recommended are:

- before a predicted major rainstorm (check embankment, spillway and outlet pipe);
- during and after severe rainstorms (check embankment, spillway and outlet pipe);
- after any earthquake, whether directly felt on the owner's property or reported by local news media (check all aspects of the dam).

Inspections should be made during and after construction and also during and immediately after the first filling of the storage.

Dealing with Problems

A systematic program of safety surveillance should maximize the likelihood that any developing conditions likely to cause failure would be found before it is too late. Surveillance will also help early detection of problems before they become major repair bills. As identified earlier typical problems (many of which are treatable if found early enough) are most likely to fall into one of the following categories: seepage/leakage; erosion; cracking; deformation/movement; concrete structure defects; and spillway blockage.

Instrumentation and Monitoring

Instrumentation at a dam furnishes data to determine if the completed structure is functioning as intended, provides a continuing surveillance of the structure, and is an indicator of developments which may endanger its safety. Typical items instrumented or monitored include;

- profiles and condition, deformations, seepages or damp areas (visual)
- reservoir water levels which relate to dam loads and flood behaviour
- local rainfall which relates to background seepages
- drainage and distinguishable seepages which relate to control of leakage water flow
- Clarity of seepage flow which relates to potential erosion of embankment or foundation material.
- water pressures within the dam and foundations which relate to structural behavior
- movement or deformation of the dam surface and internal structure which relates to structural behavior
- stresses within the dam which relate to structural behavior
- seismic acceleration which relates to structural behavior

8. Operation and Maintenance of Dams

Effective and ongoing operation, maintenance and surveillance procedures are essential to ensure the continued viability and safety of a dam and its appurtenant structures. Poor operation, maintenance and surveillance will invariably result in abnormal deterioration, reduced life expectancy and possibility of failure. The proper operation, maintenance and surveillance of a dam provide protection for the owner and the general public. Furthermore, the cost of good operation, maintenance and surveillance procedures is small compared with the cost and consequences of a dam failure which could include major repairs, loss of life, property damage and litigation.

Because many small dams fail through lack of maintenance, it is prudent to have a definite and systematic maintenance plan.

The maintenance plan should be decided upon when the construction work on the dam is completed. It will affect the life of the storage if you do not maintain it properly. A good plan should include the practices to be used, as well as the approximate time of the year when they are applicable.

Annex 13. Summary of Consultation Process

Some project activities related to water development, rangeland management, and market infrastructure and livelihood support interventions involve adverse effect on the environment. It needs closer community consultation and participation at all levels of the project implementation. Implementations of RPLRP will rely on existing GoE structures and community institutions. The communities are main actor involved in planning, implementation, monitoring and evaluation etc stages of the project. Regional, Zonal and woreda government structures have responsibilities to strengthening capacity to implement and monitor project activities at all levels. Thus, the participation of regional zonal and woreda stakeholders is paramount in the preparation and implementation of the ESMF in order to allow proper implementation of ESMF to address any possible adverse impacts due to involuntary resettlement and reduced access to natural resources through appropriate mitigation measures. Moreover, public consultation and participation are essential because they afford potentially affected persons the opportunity to contribute to both the design and implementation of the sub-projects. The participation strategy would evolve around the provision of a full opportunity for involvement. The project interventions would be initiated, planned, designed, implemented and operated by communities who by their very nature, are members of the rural community and therefore, are an integral part of and play a crucial role in the community that may be effected. Furthermore, it is the local communities who are to claim ownership of this project for it to be successful, and their wealth of knowledge of local conditions are invaluable assets to the project. In recognition of this, particular attention would be paid to public consultation with potentially affected individuals/households when resettlement concerns are involved.

Accordingly, the consultations were conducted at regional, woreda and community level. Three sets of consultations where safeguards were specifically discussed happened since the beginning of the year: one in March 2013 in the 4 covered regions with strong representation from the communities, one in Addis Ababa (22-23 May 2013) with the Regional Authorities (Regional Bureau of Pastoralism) and one in Oromia and SNNPR regions from July 21 to 29, where our Kenyan counterparts participated, to specifically address woredas and communities bordering Kenya. The consultation was aimed at exploring and soliciting feedback from concerned sector Bureaus at regional zonal woreda development Committee and PAPs on key elements of the RPF, particularly, the procedures and implementation arrangement, land compensation/entitlement matrix, dispute resolution and grievance procedures, monitoring and evaluation processes. Accordingly, at regional level consultation workshops were conducted in four regions and National level. As far as the woreda and community level consultation are concerned four kebeles and four woredas selected from Ethiopian Somali region, Afar, Oromia and Southern nation, nationality and peoples region. Therefore, four community consultation meetings were held at kebele level and four consultation meetings with woreda development committee conducted in four woredas selected from each of four regions. The detailed report of consultations is presented as follows:

- The RPF and ESMF were consulted with stakeholders at workshops prepared at Federal and regional levels. Federal level workshop Chaired by State Ministry of MoA was held in Addis Ababa. On these workshops 76 participants drawn from the respective regions and federal were attended and thoroughly discussed on the procedures and implementation arrangement, land compensation/entitlement matrix, dispute resolution and grievance procedures, monitoring and

evaluation processes. Following very brief presentation by Federal project coordinator, the participants invited to discuss on the issues related to RPF. Accordingly, the participants emphasized the importance of ESMF in addressing any possible adverse impact due to land acquisition and reduced access to natural resources. They also stressed that the grazing land and water are most vital resources in pastoral / agro pastoral areas. The participants stressed as the land in the pastoral and agro –pastoral are dominantly communal and managed by clan system. Accordingly, the meeting participants expressed that adverse impact of project interventions would be limited because land is communal and plentiful; access to natural resources (including land) was mostly communally managed according to intricate traditional systems. The participants appreciated the procedures and implementation arrangement, land compensation/entitlement matrix, dispute resolution and grievance procedures, monitoring and evaluation processes indicated in the RPF in addressing any adverse impacts because of the proposed project interventions. Furthermore, the participants reached consensus on the importance of consulting with woreda development committee and communities. Finally the the participants confirmed as the ESMF has been accepted and expressed their broad supports for the implementation of ESMF.

- As far as the consultations with woreda development Committee and community are concerned the field visits were undertaken in two groups that one group went to Afar and Somali Regional State and the other group to Oromia and SNNP regional state **in March 2013**. Accordingly, consultation were conducted in Dire woreda of Oromia, Dasnch woreda of SNNPR, Jijiga woreda of Ethiopia Somali and Ambera woreda of Afar region. The team had extensive discussion with the respective officials, experts, private investors and with communities from one kebele per woreda. The discussions were focused on the proposed interventions and possible negative and positive impacts.
- The meetings were facilitated by woreda sector experts for Afar, Oromia, Somali and SNNPR respectively and technically supported by kebele chair person
- Each of the Kebele development committee (KDC) held discussions with members of woreda development committee in four respective woredas.
- The invitation for the public consultation meeting was announced for entire members of respective kebeles; the invitation announcement was facilitated by the KDC in their respective kebeles, and people to be affected--- land and asset owners, people using the land for livelihood activities, participated; and cultural and religious leaders, community elders and landholder, who will be impacted during the RAP implementation process were invited to participate in the community consultation.
- All community social classes such as religious and clan leaders, women, minorities, disabled societies and youth also participated in the community consultation meetings.

Communities were also notified by public notices placed in the public places in all the villages in the woredas of the four communities where the consultation meetings took place. The invitation of public consultation meeting was announced for entire members of respective kebeles. A total of 368 people (211 men, 154 women and 98 youths) participated in the community consultation meetings in four kebeles of four selected woredas of four regions.

Table 1.Community Consultation meetings participants

No.	Kebele	woreda	Region	Elder (male)	Elder (Female)	Youth	total
1	Bubua	Dasenech	SNNPR	48	30	30	78

2	Romoso	Dire	Oromia region	55	42	23	97
3	Melka were	Amibara	Afar region	38	32	15	70
4	Dhaba	Jigjiga	Somlai region	70	50	30	120
Total				**211**	**154**	**98**	**368**

6.1 Issues Discussed during consultation

The following key elements of the ESMF and the project were discussed during the public consultations, including the benefit and adverse effect of the project on the environment, monitoring and evaluation and other general features of the project, to seek broad community support. During the meetings, the facilitators briefed communities on the aim of ESMF and why it is necessary to trigger World Bank safeguard policy; the procedures and implementation arrangement of ESMF as it relates to land acquisition, compensation and reduced access to natural resources and the issues of participation and sharing benefit by vulnerable groups or underserved people. Following the brief introduction of facilitators, the community openly expressed their views and the outputs of the public consultations are presented as follows.

Adverse effect of the project on the environment: - On the issues of adverse effect of the project on the environment result and how the impact will be mitigated by RPLRP, the participants explained that the implementation of subprojects and other livelihood support interventions obviously may have may require a piece of land and may have adverse effect but that impact can be mitigation will not be possible during and after the RPLRP investment project is implemented. In this case the community stressed the importance of impact assessment before the implementation of any intervention. Thus, the community emphasized that the environmental protection is very important that every members of community should give due attention. They also appreciated the purpose of.

- The, people who participated on consultation meetings also appreciated the ESMF implementation and the role of environmental protection policy in the country. Moreover, they expressed as they well understood what process will be followed if RPLRP investment subproject or livelihood support intervention needs to acquire land and people or property is disturbed or when there is a possibility that it would affect access to natural resources by pastoral and agro-pastoral communities'. Accordingly, the meeting participants expressed that adverse impact of community sub project and livelihood support interventions would be limited because land is communal and plentiful; access to natural resources (including land) was mostly communally managed according to intricate traditional systems, and the identification of sub-projects would be in line with traditional resource management systems. However, it was explained that the issues of land acquisition and access to natural resources need closer attention in pastoral areas so that nobody will be treated badly and be impacted negatively on environment and it will be done in culturally appropriate manner acceptable to the PAPs.
- Almost all of them agree that land supply for development investment that benefit the community hasn't been an issue of concern until recently. They have confirmed that the preparation of ESMF under RPLRP allows for due care to ensure that there is no unlawful activity will be avoided or where it is necessary, is minimized. without mitigation

- The other major view clarified in the consultation was that, the fear of involuntary displacement of individuals from their private property is very unlikely for there is relatively ample communal land in the area.

Institutional Arrangement: During consultations they participants were asked whether they knew how the project would be implemented and the implementers of the project. The participants said that RPLRP is community project in which the communities are main actor involved in planning and implementation and procurement processes; and communities through various community committee directly decide and control the resource utilization. They have mentioned that they know regional and Woreda level institutions and their responsibilities. Informants accepted the implementation arrangement as indicated in ESMF concerning the environmental protection issue.

Participatory monitoring and Evaluation:-The findings of community consultations indicated that the project follows participatory approach in every stages of project including planning, implementation and procurement of skilled labor and industrial materials and oversight the delivery of services. The monitoring and evaluation is done at all levels. Informants stressed that communities are regularly holding discussion, follow up day to day evaluation of the implementation of project. Besides, the communities contribute cash and labor /local materials for the implementation of subprojects. Furthermore, *they* stressed that three step planning process should be inclusive and allow vulnerable people to communicate their concerns throughout planning and implementation, and recommended measures to ensure that such vulnerable groups or underserved areas and women are adequately represented. It was promised to the participants that their views expressed during public consultations will be properly addressed in the preparation of ESMF and design of the project.

Grievance Addressing Mechanism: - The informants said that The RPLRP laid down its grievance addressing structure from the kebele to the woreda level to ensure transparency and equal access to resources and information regarding RPLRP activities. Moreover, they expressed that the appeal hearing mechanism mainly focuses on the mismanagement of the selection process of communities, fund and subprojects. At the woreda level, the committee is organized from different sector offices and community representatives particularly from the woreda council, woreda women's affair, clan leaders or community elders, youth and sport offices, and community based organizations.

At the community level, the social audit committee is established, however, to find members of the committees different from development committees that are responsible for the implementation and management of the project activities is a challenge. Due to the concentration of the RPLRP on infrastructure development, appeals and grievances from individual households are rare. As a result, this committee focuses on the auditing of the fund flow and utilization, management of the project and plays an auditing role than addressing other forms of grievances, such as water use conflict.

The participants of the consultation meetings said that in a number of cases, appeals are rare in RPLRP interventions. Furthermore, they emphasized the importance of the woreda redress system and community audit and supervision committee to handle any complaint that may arise in relation to project and ensure adequate representation of vulnerable groups or underserved areas and women in the project planning and implementation process.

property situated thereon" (*Proclamation No. 455/2005 Article 2(3)*).

List of individuals consulted during the visit during RPF and ESMF

No	Name	Address	Responsibility	Telephone
1	Mr Mulatu Negasa	Addis Ababa	Oromia early warning process head	+251910493315
2	Tefera Bekele	Addis Ababa	Oromia early warning expert	-
3	Eyob Gugesa	Addis Ababa	Oromia early warning expert	-
4	Tebebe Beyene	Addis Ababa	Oromia early warning expert	-
5	Dr Mekonin Tilahun	Addis Ababa	Oromia Livestock Development and health control Agency expert	0910318935
6	Dr Adugna Taddesse	Addis Ababa	Oromia Livestock Development and health control Agency expert	0910837416
7	Dr Asmamaw Duressa	Addis Ababa	Oromia Livestock Development and health control Agency expert	0911335992
8	Dr Seada Haji	Addis Ababa	Oromiya Livestock Development and health control Agency expert	0911989331
9	Dr Teshome Jagama	Addis Ababa	Oromiya Livestock Development and health control Agency expert	0913212179
10	Dr Helina Getachew	Addis Ababa	Oromiya Pastoral Development commission expert	0932177265
11	Dr Belay Wakjira	Addis Ababa	Oromiya Pastoral Development commission expert	0911991053
12	Dawit Kussie	Hawasa	SNNP Pastoral area Development Commission, Head	0916581289
13	Assefa Asmare	Hawasa	SNNP Pastoral area Development Commission, Expert	0911571889
14	Seife Atnafe	Hawasa	SNNP Pastoral area Development Commission, Expert	0916057990
15	Alemnesh Lemma	Hawasa	SNNP Pastoral area Development	0911850087

			Commission, Expert	
16	Belayneh Gelatu	Hawasa	SNNP Pastoral area Development Commission, Expert	0916627249
16	Menlargew Adele	Jinka	Input cooperative department head	0916856544
17	Essaw Beresha	Jinka	Administrator Public Relation Expert	0911095858
18	Metiku Salelew	Jinka	Water Development expert	0916855790
19	Ayetomo Ashagari	Jinka	Early warning and response expert	0913471543
20	Chumree	Omorate woreda	Administrator	0927835996
21	Liben Arero	Yabelo Woreda	Administrator	096607062
22	Jeledesa Tuta	Dere Woreda	Administrator	0910051040
23	Begeja Morege	Moyale woreda	Administrator	0913063681
	Community name	Woreda/Region		Number of participants
24	Bubua kebele community	Dasnech,SNNP	community	78 (in total)
25	Romso kebele community	Mega, oromiya	Community	97
26	Melka werer kebele	Amibara, Afar	Community	70
27	Dhaba kebele	Jigjiga, Somali	Community	120

Annex 14: ESMF Quarter and Annual Reporting Form

1. **General**

Location of the subproject [Type here – Specific location of each subproject can be written in the remark column corresponding each subprojects]
Woreda: [Type here]
Region: [Type here]
Reporting Quarter/Year: [type here]
Date of the report: [Type here]

2. **Project's summary:**

Here, short description of the subprojects which are implemented during the reporting period will be done focusing on to how many of them are screened; ESMP, RAP, PMP and other instruments prepared; field appraisal done; ESIA carried out; reviewed; approved and other aspects of the implementation of the ESMF. Capacity building activities, challenged faced, and lesson learned will also be described in short here.

3. In the table below, fill and tick for a number of subprojects/activities (screened, reviewed and approved) described below against the column question

Type of Subprojects/activities	Number of subprojects in this category	Region/Zone/Woreda/Kebele where the subproject located	Approved this quarter/year	Application included ESMF checklist (Annex 2)	Subprojects for which						Remarks
					Desk review/appraisal undertaken	ESMP prepared	Field appraisal undertaken	RAP prepared	PMP prepared	Full ESIA Carried out	
1. Natural Resources Management											
Construction of watershed based different soil and water conservation structures											
Establishment of nursery											
Plantation of multipurpose trees											
Others (specify)											
Construction of micro dams											
Construction of weir											
Construction of farm pond											
Construction of HDW											
Construction of other WH structures											
Construction of water supply structures (bore hole and others)											
Others (specify)											
2. Market center development											
Construction of primary market center											
Construction of secondary market center											
Construction of tertiary market center											
Upgrading/strengthening/construction of veterinary clinic											
Upgrading/strengthening/construction of veterinary laboratories											

Type of Subprojects/activities	Number of subprojects in this category	Region/Zone/Woreda/Kebele where the subproject located	Approved this quarter/year	Application included ESMF checklist (Annex 2)	Subprojects for which						Remarks
					Desk review/appraisal undertaken	ESMP prepared	Field appraisal undertaken	RAP prepared	PMP prepared	Full ESIA Carried out	
Construction/strengthening slaughterhouses											
Others (specify)											
3. Livelihood support											
Animal fattening											
Milk production (dairy farm)											
Milk processing (dairy processing)											
Poultry production											
Aquaculture											
Bee keeping											
Honey processing											
Mining											
Others (specify)											

4. Have communities been involved in the identification of subprojects? Tick [x]

[ ] Yes [ ] No
If yes, describe:
[type here]

Please explain any participatory issues that have impacted the ability of the communities to identify subprojects
[type here]

5. Were there any unforeseen environmental or social problems associated with any subprojects approved and implemented this year? If so, please identify the subprojects and summarize the problem(s) and what was or will be done to solve the problem(s). Use a summary table like the one below.

Subproject	***Key gaps or areas of non-compliance(problems)***	***Key action taken***	***Follow up activities recommended (action to be taken)***

6. Is the project [type the name of the project here] positively contributing to the environment in this Woreda/region?

☐ Yes
☐ No
☐ Too early to say

Please explain:

[type here]

7. Did the subproject improve the welfare of women and youth in this Woreda/Region?

☐ Yes
☐ No
☐ Too early to say

Please explain:

[type here]

8. Has there been any analysis of cumulative environmental and social impacts of AGP projects in this Woreda/Region? Tick [x]

[ ] Yes [ ] No
If yes, describe:

[type here]

9. Have there been any environmental and/or social analyses undertaken in this Woreda/Region in connection to AGP projects? Tick [x]

[ ] Yes [ ] No
If yes, describe:

[type here]

10. Training
Please the types of training given at your Woreda/Region.

[type here]

Please list the types of training needed to ensure the effectiveness of the ESMF in your Woreda.

[type here]

11. Completed by: [Name]
Position: [type here – positions of all contributors]
Date: [type here]

Annex 15: Comparison between the World Bank and relevant the National policies/instruments

OP	Safeguard Policies	Summary	Ethiopian requirements	Gaps and recommendations
4.01	**Environmental Assessment**	The EA policy provides a framework for: • The assessment of potential environmental impacts of projects. • Creating enabling environment for making recommendations about sound mitigating measures and monitoring plan for these potential adverse environmental impacts. Project categories: • Category A – projects always requires a full EIA • Category B – a full EIA is not always required but some environmental analysis is necessary • Category C – No EIA is required	The Environmental Impact Assessment (EIA) Proclamation provides: • A statutory requirement for conducting EIA for development projects that cause significant environmental impacts • Required procedures to conduct EIA through its guidelines. Project category (scheduled Activities): • Schedule 1 – projects which necessarily require a full EIA • Schedule 2 – projects do not necessarily require a full EIA but some environmental assessment is necessary • Schedule 3 – projects do not require EIA	• Both OP 4.01 and Environmental legislation of Ethiopia are in agreement
4.09	**Pest Management**	The policy: • Promotes the use of	Special decree for Pesticides Registration (Proclamation	The national decree articulate and provides the appropriate

		biological or environmental control methods and reduces reliance on synthetic chemical pesticide. • Stipulates the use of Integrated Pest Management (IPM) as a sound solution. • Encourages the use of IPM in all sectors concerned.	No.674/2010): • is the main law which assigns registration and control responsibilities to Ministry of Agriculture • Promotes safer pesticide handling and use in the country • Requires that all pesticides should be registered on the basis of demonstrated product effectiveness and safety for humans, non-target organisms and the environment.	guidelines to ensure that the project complies with OP 4.09
4.12	**Involuntary Resettlement**	This policy: • Outlines that where feasible, or minimize, exploring all viable alternative, to avoid resettlement • Prescribes compensation and other resettlement measures to achieve its objectives • Stipulates that involuntary resettlement should be an	*Proclamation No 455/2005*: • Provides the guiding principles for resettlement in Ethiopia. • Introduced a legal framework within which resettlement activities must be conducted	*Resettlement*: • *OP4.12* – resettlement should be avoided whenever possible. • *Ethiopian legislation* – states that '*expropriation of land will be done when deemed necessary for public purposes*'. *Eligibility*:

		integral part of project design and should be dealt with from the earliest stages of project preparation according to a set of policy considerations/ procedures.		• *OP 4.12* – entitles those who have formal rights, claims to land and no recognizable legal right, to compensation. • *Ethiopian legislation* – entitles only those who are 'landholders' with legal possession of the land and who own property thereon. *Notification period:* *OP4.12* – requires that displacement must not occur before the necessary measures for resettlement are in place. • *Ethiopian legislation* – requires that property must be handed over 90 days after compensation has been paid.