



THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF AGRICULTURE (MoA)

Ethiopia Emergency Locust Response Project (EELRP)

**ENVIRONMENTAL AND SOCIAL MANAGEMENT
FRAMEWORK (ESMF)**
(Draft document)

August 2020

Acronyms

ADLI	Agriculture Development Led Industrialization
APE	Agriculture Policy of Ethiopia
BOA	Bureau of Agriculture
BoARD	Bureau of Agriculture and Rural Development
CRGE	Climate Resilient Green Economy
CSA	Central statistical Agency
CSE	Conservation Strategy of Ethiopia
DA	Development Agent
DLCIMPDD	Desert Locust Control and Impact Management Project Design Document
EA	Environmental Assessment
EELRP	Ethiopia Emergency Locust Response Project
EFCCC	Environment, Forest and Climate Change Commission
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
EPO	Environmental Protection Office
E-S	Environmental and Social
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESRC	Environmental and Social Risk Classification
ESS	Environmental and Social Standard
FAO	Food and Agriculture Organization
FDRE	Federal Democratic Republic of Ethiopia
GIIP	Good International Industry Practice
GOE	Government of Ethiopia
GTP	The Growth and Transformation Plan
ILO	International Labour Organization
IPMP	Integrated Pest Management Plan
EFCCC	Environment, Forest, and Climate Change Commission
MOA	Ministry of Agriculture
MoANR	Ministry of Agriculture and Natural Resources
MoLSA	Ministry of Labor and Social Affairs
NGOs	Non-Governmental Organization
NR	Natural Resources
OHS	Occupational health and safety
PAD	Project Appraisal Document
PIC	Prior Informed Consent
PIFU	Project Implementation Focal Unit
PIM	Program Implementation Manual
PIU	Project Implementation Unit
PPE	Personal protective Equipment
PSNP	Productive Safety Net Program
REPA	Regional Environmental Protection Authority
SA	Social Assessment
SEA	Strategic Environmental Assessment

SEP	Stakeholder Engagement Plan
SEUs	Sectoral Environmental Units
SNNP	Southern Nations, Nationalities and People
SSAHUTLC	Sub-Saharan African Historically Underserved Traditional Local Communities
ToR	Terms of Reference
ToT	Training of Trainers
UNCEDAW	United Nations Convention on the Elimination of all forms of Discrimination Against Women
USD	United States Dollars
WAO	The Woreda Agriculture Office
WARDOW	Woreda Agriculture and Rural Development Office
WB	The World Bank
WLAEPO	Woreda Land Administration and Environmental Protection Office

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Executive Summary

Introduction and Background

The Desert locust (*Schistocerca gregaria*) is one of the dangerous transboundary pests that cause/pose severe threat to the livelihoods of farmers and pastoralist communities of Ethiopia and other neighbouring countries such as Kenya, Somalia, Eritrea, Sudan, Djibouti and Yemen. Locusts multiply and rapidly migrate and spread within countries and across countries being aided by weather conditions. Desert locust is polyphagous and can cause serious damage to various crops, pasture and forests.

Thus, in order to combat the currently occurring locust infestation in the Ethiopia Emergency Locust Response Project (EELRP) is currently designed, and the ESMF is prepared to incorporate the environmental and social risks, impacts and management of EELRP.

Methodology of the ESMF preparation: A thorough review of the, environmental and social management National/Regional policies, proclamations, regulations, guidelines; The World Bank (WB) Environmental and Social Standards (ESS); FAO and WHO guidelines; international conventions; and other relevant documents including the draft Project Appraisal Document (PAD) prepared for EELRP, the Desert Locust Control and Impact Management Project Design Document (DLCIMPDD), Environmental and Social Commitment Plan (ESCP) is undertaken. In addition, consultations with key Federal stakeholders were conducted.

Project Description

The main objective of the project is to urgently devise, deploy and implement integrated, comprehensive and coordinated desert locust control program, enhance and protect the livelihood of farmers and pastoralists from locust control attack while ensuring food security of millions of farming and pastoralist communities in the most affected geography and rehabilitating pastureland affected by desert locust.

Components of the EELRP

There are four main components in this project comprising of Survey, Surveillance and effective early management of the outbreak, pastureland rehabilitation of pastoralist area to mitigate the impact caused by the Desert Locust, strengthening of the plant health system in the country to improve early warning system and project management component. A description of each standardized components is provided as follows:

Component 1: Locust monitoring and control. The Ethiopia project will adopt a two-pronged approach for locust monitoring and control under this component: (a) direct support to improving surveillance and assessment of locusts' situation, habitat conditions and geographic exposure to deploy expert teams and drones for the collection of data at strategic locations, reporting occurrences and possible occurrences of outbreaks, and assessing geographic exposure to locusts. Support to community-based monitoring and forecasting in both pastoralist and farming communities prone to locust breeding and invasion will also be provided including training of scouts and sensitization campaigns for community/village leaders. And well as targeted aerial and ground spraying to reduce locust populations and prevent their spread to new areas through targeted ground and aerial control operations.

Component 2: Livelihood protection and restoration. It is estimated that 531,000 households will be directly affected by the locust crisis in Ethiopia, facing near-complete loss of crop production and some loss to livestock. The project will provide a seed-fertilizer-pesticide package to selected farmers to ensure planting in the upcoming cropping season and, in pastoralist areas, fodder to guard against further livestock losses and thus loss of their main productive assets. Additionally, the project will provide fodder seed to affected communities to rehabilitate pastures in rangeland areas depleted by the desert locust invasion. The locust response project will not involve cash transfers¹. The project will not

reach all affected communities, but it is expected that similar interventions by the FAO and the GoE will allow a comprehensive coverage. The GoE will also trigger emergency food security mechanisms such as the emergency food appeal and contingency funding under PSNP IV that will complement the project's livelihood support initiatives with cash transfers to cover emergency food needs and to protect against distress sales of assets. The project will focus on short term measures as longer-term rangeland rehabilitation and pasture improvement efforts are already under way through World Bank-IFAD financed LLRP. Both PSNP IV and LLRP have prepared, consulted up on and disclosed environmental and social risk management instruments.

Component 3: Strengthening Early Warning Systems and Preparedness. Under this component, the project would assist the Ethiopia MoA in establishing an integrated system for locust detection, occurrence projection, early warning and systematic data analysis and comprehension. Through acquisition of state-of-the-art data collection and dissemination tools and improving data collection methods, building analytical capacity for understanding data, assessment of current strengths and weaknesses in locust occurrence projection and early warning systems and development of a roadmap on how best to develop the systems based on international best practice, capacity building for federal and regional experts using both national and international experts, technical assistance through appointing senior plant protection experts to work with regional desert locust control units.

Component 4: Project Management. Under this component, financing will be provided for project management activities including (a) the hiring of a pest management expert; and, (b) operating costs for monitoring (particularly related to financial management and safeguards), technical backstopping at different levels; and (c) communication and information exchange. Regarding the latter, a particular effort will be made to enhance communications about desert locusts and their negative impact on affected communities as well as to disseminate information generated by the early warning systems. Details of communication activities are provided in the PIM.

Environmental and social management requirements

This ESMF has mainly addressed and focused on impacts emanated from activities of Component 1: Locust monitoring and control and risks related with Component 4: Project Management since Component 2: Livelihood protection and restoration's detailed activities have not been adequately identified so far once the livelihood restoration activities have been fully addressed, this ESMF will be updated to address Component 2 issues.

The selection, planning, design and implementation of the activities under EELRP have to be consistent with the relevant national environmental and social management requirements as well as the World Bank **Environmental and Social Framework (ESF)** applicable to the project and international conventions. In each case, national, regional, woreda and local institutions to be involved in screening, reviewing and approving subprojects; and they will carry out their respective roles and responsibilities. The responsibilities may include identification, screening, conducting environmental and social impact assessment (ESIA), and reviewing the ESIA report for ensuring compliance to obligatory requirements under laws and regulations, and issuing approvals for subproject implementation.

The EELRP risk classification is high given that significant adverse environmental and social impacts are expected to occur due to implementation of the project. The following World Bank Environmental and Social Standards are applicable to the EELRP: **ESS1**: Assessment and Management of Environmental and Social Risks and Impacts, **ESS2** Labor and Working Conditions, **ESS 3**: Resource Efficiency and Pollution Prevention and Management, **ESS4**: Community Health and Safety, **ESS 6**: Biodiversity Conservation and Sustainable Management of living Natural Resources, **ESS7**. Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (SSAHUTLC), and **ESS10**-Stakeholder Engagement and Information Disclosure.

The Potential positive impacts of EELRP include; Combating the damage created by the widespread desert locust in Ethiopia, protect fragile livelihoods from locust infestation and subsequently enhance the food security of communities through livelihood support in the project area, provision of opportunities to reclaim human capital and asset losses due to the desert locust, support vulnerable households to gain access to livelihoods support, feed/fodder distribution and essential agricultural inputs for building livelihoods, restocking of livestock, rehabilitating rangelands, provision of veterinary services including vaccination for prevention of disease outbreaks.

Potential Negative Impact and risks of EELRP: include risks to the environment and to humans (social risks)

- **Risks to the environment:** pollution of ecologically sensitive habitats such as wetlands, national parks and water bodies, loss of biodiversity, air pollution through dust emissions, pollution due to unused and obsolete pesticide, and empty pesticide containers among others.
- **Social Risks:** Risks to community and workers' health, risks of exclusion of vulnerable people and underserved groups **Risks to animal health and** greenhouse gas emissions and climate change risks

Potential mitigation measures of EELRP include but not limited to the following:

- Identifying and mapping out sensitive ecological and agronomical areas, establishing Strict Operational Procedures (SOP) and a judicious choice of pesticides (i.e. Biopesticides could be used in/near potentially sensitive areas).
- Implement Integrated Pest Management (IPM) technique and reduce reliance on synthetic chemical pesticides. (Use both synthetic chemical pesticides and Biopesticides.
- Use alternative pest control methods (physical, mechanical, and biochemical
- Develop a mechanism/ design a system for safe disposal of unused and obsolete pesticide, and empty pesticide containers and never reuse. Ensure the safe disposal of empty containers, tank washings and surplus pesticides.
- Introduce improved, climate-resilient varieties that provide for higher yields and are resistant to pest/disease and other climate-related threats.
- Re-establish/restore pasture land by establishing nurseries throughout the affected area.
- Provide basic training and awareness for workers, regarding the use of appropriate preventive measures against HIV AIDS, and COVID-19.
- Provide the necessary protective equipment to all staff members.
- Implement social distancing during meetings with key informants.
- Minimize pesticide use and minimize health and environmental risk when pesticides are used.
- If there are no feasible alternatives to pesticides, select less toxic pesticides that will lead to the least human exposure before, during and after use
- Reduce exposure time or the degree of exposure.
- Promote increased community awareness about the impacts of the locust swarms and the response efforts to support communities before, during and after the crisis.
- provide adequate training to workers on first aid issues and provide them with fully stocked First Aid Kit
- Provide health and safety protection equipment (protective clothing and hard boots and hats, protection for eyes and ear muffs) at all construction sites or during the spraying operations.
- Regular community interaction and awareness creation about the benefits, potential side effects of pesticide use on humans, agricultural crops, livestock and livestock feed, on water wells for humans and livestock, and the environment.
- Enhance their access to food, and rehabilitate food production systems and livelihoods that have been damaged or destroyed by swarms.

- Arrange health monitoring as may be necessary for certain hazardous agrochemicals based on their frequency of use.
- Enforce any exclusion period after application-time during which humans, livestock, etc., must be kept away from the treated area;
- Enhance access to food, and rehabilitate food production systems and livelihoods that have been damaged or destroyed by swarms.
- Provision of fodder to livestock holding households to replace impacted grazing land until restoration can be completed.
- Develop a workable monitoring and evaluation system during and post-campaign

ESMF Procedures for Subproject Preparation, Approval, Implementation and Reporting

The processes, procedures and institutional arrangements for addressing adverse environmental and social concerns when identifying, preparing, approving and implementing activities of EELRP are defined in generic steps in this ESMF. When demand-driven subprojects/Activities such as pesticide spraying are identified and prepared at Kebele level by the communities or groups, these subprojects/activities will be screened at Kebele level by the DAs and KDCs against environmental and social screening checklists prepared for this purpose. Similarly, these subprojects will be screened, ESA (ESMP/ESIA) prepared, reviewed, and approved at Woreda and regional levels.

Quarter and annual report should be prepared at woreda, regional and federal levels using the institutional arrangements, and the roles and responsibilities identified for the implementation of the ESMF. Regular annual reviews on the implementation of the ESMF for the subprojects are to be carried out by an independent local consultant that is not otherwise involved in the implementation of the project.

Capacity Building, Training, and Technical Assistance

The environmental sustainability of EELRP target areas is highly and unavoidably dependent on the capacity of communities, Woreda, Zonal, Regional and Federal implementing units (PIU) to carry out the associated design, planning, approval and implementation of subprojects and the ESMF. Ministry of Agriculture (MOA), Regional and Woreda Environmental Protection Authorities/ Offices have an overall key responsibility of ensuring that the project complies with Ethiopian environmental and social laws, and the World Bank ESF and make sure that the project complies with this ESMF.

The PIUs at Woreda level except Woreda EPO and most of regional level implementing agencies do not have staff directly trained and dedicated for environmental management purposes within these institutions. In many institutions, staffs have been retained for core activities. As a result, the environmental and social issue is handled by staff members not adequately familiar with it. In some cases, environment personnel are present but level of training and technical capacity on environmental and social principles and tools of management is not sufficient.

Accordingly for effective implementation of the ESMF and related safeguard instruments', strengthening of the existing structure has paramount importance. In line with this ESMF has specified the required manpower from federal up to woreda level where the proposed project intervene areas. The following are proposed manpower at all level.

- Hire, as a consultant, pest management specialist , who lead the Desert Locust survey and control operation (Under project),
- Hire ESHS specialist (Under Project) working as Environmental and Social Safeguard Specialist,
- At Regional level officially appoint safeguard specialists from BoAs and/or Bureau of Pastoral community developments (trained or to be trained) and allocate operational budget

- At Woreda level officially appoint safeguard specialists from Agricultural offices and/or Pastoral development offices (trained or to be trained) and allocate operational budget.

Furthermore, for the successful implementation of the ESMF during the EELRP implementation period, sufficient understanding of the mechanisms for implementing the ESMF will be required by the various stakeholders at different level (especially at woreda and kebele level). Hence capacity building trainings and awareness creation should be provided. The focuses of the trainings include among others: national and the World Bank environmental and social legal, policy and administrative requirements; stakeholder mapping and engagement, specific requirements on the ESMF, ESIA, IPMP, SA, and other social development related plans. Training for farmers, pastoralists, scouts, experts and officials at different levels on locust infestation control management, and others using the FAO Desert Locust Control Training Manuals, Community awareness (including clan and religious leaders) raising trainings on community health, safety, and the impact of pesticide spraying before, during and after the operation.

Specific aspects of environmental and social assessment, train workers on emergency preparedness and response, Training operation workers on occupational health and safety requirements of the project, and training workers on GBV and response mechanism.

The total amount budget required, for the implementation of the EELRP's ESMF related with capacity building, monitoring and auditing of both the environmental and social management, is **134,517.38 USD** (For the detail see Table 10). **N.B:** For the capacity building and other safeguards implementation such as IPMP, the Project PIM and the IPMP have earmarked necessary budget. Therefore, apart from this ESMF proposed budget, such budget should be considered for the implementation of the Project's Environmental and Social management requirements. Hence the total budgets for Implementation of safeguard instruments is estimated as described below.

These are under Component 1, Provision of PPE for 30,000 persons with total amount of 6 million USD; Health and Environmental impact assessment including monitoring activities 2.5 million USD for two phases (Phase 1 and 2); for about 70,000 community and village leaders sensitization workshops about 980,000.00 USD; and for about 72,128 Technical and Experts training cost about 6,048,000 for 1st and 1,512,000.002nd phase have been budgeted. Under Component 4, for hiring consultant 150,000.00 USD has earmarked. Most of the proposed activities for the implementation of IPMP have covered and addressed in the IPM. For some proposed activities not clearly addressed in the PIM, such as Research activities, renovation of big pesticide stores (about 40,000.00 USD) and transportation of empty or damaged containers to the center, an estimated cost has been proposed in the Project's IPMP. The total estimated budget earmarked in the PIM together with new proposed activities to be inclusive in the suggested PIM budget will be about **17 million USD**.

1. Introduction

1.1. General Background of the Project

The Desert Locust, *Schistocerca gregaria* (Forskål 1775) represents a major threat to agriculture within a very large area extending from the Atlantic Ocean and North Africa to the Middle East and Southwest Asia. This locust lives in desert and semi-desert areas. It is a much dreaded insect due to the important damage it can inflict on agro sylvo-pastoral production during invasion periods and the resulting socio-economic and environmental disturbances. One of its main characteristics is that it has a highly developed migratory capacity over long distances, making the problem one of international scope.

From time to time, outbreaks, upsurges and invasions develop throughout the world Desert Locust prone areas linked to periods of favourable rainfall. They are interrupted by recession periods during which the solitary populations of the Desert Locust are only present in very small numbers and distributed over a restricted area referred to as the recession area, mainly desert and far from cultivated lands. A total area estimated being covered by Desert Locus invasion is about 16 million km² which is particularly concerns for the Saharan zones. On the contrary, during invasions, the gregarious populations can occupy a much larger area including 65 countries in Africa, the Middle-East and Southwest Asia, covering a territory of 29 million km², extensively cultivated and populated by more than one billion people.

Similarly, Ethiopia is one of the frontline countries of Desert Locust invasion in large and also recession with certain areas suitable for locust breeding and gregarization in eastern Africa. The lowland areas of, Eastern, South Eastern, Northern, North Western, North Eastern, Southern and South western zones of Ethiopia occupy key areas of locust development. The GoE in collaboration with relevant development partners and mobilizing the local community and resources has made relentless efforts to control the pest and prevent or minimize its damages. Intensive surveillance, monitoring and ground and aerial control operations were carried out in different parts of the country. However currently (in April 2020), the Desert Locust situation is becoming worst and very serious in Ethiopia.

The GoE (Ministry of Agriculture), recognizing the damage being caused by this existing and predicted desert locust invasion severity, has requested financial assistance from the World Bank for Desert Locust Emergency Response. Accordingly, the Project called Ethiopia Emergency Locust Response Project (EELRP) has been prepared in response to the prevalence of locust emergency in the different regions of the country.

The proposed project areas demonstrate considerable diversity in terms of water resources and landscape, from lowland, midland and highlands and livelihoods from agricultural, agro-pastoral and pastoral. The locust infestation spraying, and subsequent livelihoods support will be implemented in historically underserved remote areas, some affected by conflict whose livelihoods are fragile and may further become vulnerable due to the locust infestation. The surveillance assessment and prediction of next generation locust infestation areas of Somali region (Gode up to Moyale), Oromia region (woredas bordering Somali region such as Bale, Borena, Guji), SNNP including lowlands of South Omo and Konso experienced conflict since 2018 and hosts substantial number of people in internal displacement.

In line with this the GoE has been preparing the environmental and social management instruments and general frameworks, aiming sustainable development, as per the World Bank Environmental and Social Frame requirements. One of the instruments that have been required is ensuring the preparation and implementation of ESMF for the EELRP which addresses all environmental and social impacts/risks emanated from the project activities. And also specifies some special plans such as an Integrated Pest

Management Plan (IPMP) which will be an integral part of the overall Environmental and Social Framework (ESMF) of the proposed project.

1.2. Objectives and Scope of the ESMF

1.2.1. The objectives of the ESMF

- Establish clear procedures and methodologies for integrating environmental and social issues in planning, review, approval and implementation of EELRP Subprojects/Activities.
- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to implementation of interventions included in the EELRP.
- Strengthen environmental, social, health and safety performance, labor and working conditions;
- Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF;
- Establish the budget required to implement the ESMF and;
- Provide practical information resources for implementing the ESMF.

In addition, the key areas of the social concerns are addressed in a Social Assessment (SA) study which is separate safeguard instruments prepared for this Program.

1.2.2. Scope of the ESMF

The scope of this ESMF is limited to ensure that adverse environmental and social risks and impacts of sub projects implemented under the EELRP are avoided or appropriately mitigated and compensated during the implementation period 20-May-2020 to 25-May-2023.

This ESMF has mainly addressed and focused on impacts emanated from activities of Component 1: Locust monitoring and control and risks related with Component 4: Project Management since Component 2: Livelihood protection and restoration's detailed activities have not been adequately identified so far once the livelihood restoration activities have been fully addressed, this ESMF will be updated to address Component 2 issues.

1.3. Methodology of the ESMF preparation

Taking in to account COVID 19 pandemic existing situation all over the world, for this task no field work has been conducted for site observation and stakeholder consultation. However, in order to get stakeholder concerns and to make effective assessment of base line data, various methods such as reviewing of documents, virtual communication and data generation from Woreda to Federal level using information datasheet (Annex 9, Annex 10 and Annex 11) has been undertaken.

A. Review of relevant regulatory, policy and technical documents

The following, some among others, documents pertinent to this task were reviewed:

- The Ethiopian environmental policies and regulations,
- Proposed EELRP documents
- Integrated pest management tools and manuals developed by the Ethiopian MoA, in collaboration with the UN Food and Agriculture Organization (FAO),
- The World Bank's ESF,
- The WBG EHS Guideline and other applicable policies,
- Technical documents related with IPMP, and
- Other related ESMFs.
-

B. Stakeholders Consultation

Stakeholders consultation was carried out using various techniques including using information gathering checklists (Annex 9, Annex 10 and Annex 11). Accordingly, main issues raised during consultation meetings were summarized and addressed in this document and draft IPMP document.

C. Baseline assessment

The baseline assessment, using information datasheets attached in this document as annex (Annex 9, Annex 10 and Annex 11) has been compiled, analyzed and has been part of the overall study and preparation of this ESMF document. For this purpose, sampled but representative (in terms agro ecology and farming practice including pastoral community) woredas in each project Regions were selected and assessed using information data sheet and secondary data (Literatures and Project Documents). The following issues among others which are pertinent with the development of IPMP have been addressed and incorporated in this IPMP preparation:

- Existing and anticipated pest problems,
- Assessment of physical and bio-physical environment (climate, topography at the sub-project site(s), geology, hydrogeology, surface water, soils, erosion sensitivity, flora, fauna, including the identification of any protected or endangered species),
- Land use at the project site(s) and in its (their) vicinity, and
- Human environment: description of neighboring communities (population size, population structure and demography, socio-political organization, livelihoods, access to public services).

D. Institutional capacity and Implementation assessment

An assessment on institutional capacity related with IPMP was also carried out. Some among others are the following.

- Identifying the implementation team,
- Assessing institutional strengthening and implementation arrangements, and accordingly identified gaps / capacity limitations and come up with possible recommendations,
- Workers training plans and policies, along with estimated budget has been developed,
- General awareness creation and training plan for relevant community members or other relevant actors has been developed.

2. Description of the Project

2.1. Project Objectives and Scope

The main objective of the EELRP is to urgently deploy and implement integrated, comprehensive and coordinated desert locust control program, enhance and protect the livelihood of farmers and pastoralists from locust control attack while ensuring food security of millions of farming and pastoralist communities in the most affected geography and rehabilitating pastureland affected by desert locust. Furthermore, this project will strengthen the plant health system by improving the surveillance, prediction and information dissemination system on current and future locust movement and potential occurrence.

Project Scope: The scope of the project is limited to urgently deploy desert locust attack control system, support pastoralist and farmers in affected geography in all regions including pastureland rehabilitation and strengthening the plant health system of the country.

2.2. Project Components and Result Framework

2.2.1. Project Components

There are four main components in this project comprising of Survey, Surveillance and effective early management of the outbreak, pastureland rehabilitation of pastoralist area to mitigate the impact caused by the Desert Locust, strengthening of the plant health system in the country to improve early warning system and project management component. A description of each standardized components is provided as follows:

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Component 3: Strengthening Early Warning Systems and Preparedness. Under this component, the project would assist the Ethiopia MoA in establishing an integrated system for locust detection, occurrence projection, early warning and systematic data analysis and comprehension. Through acquisition of state-of-the-art data collection and dissemination tools and improving data collection methods, building analytical capacity for understanding data, assessment of current strengths and weaknesses in locust occurrence

projection and early warning systems and development of a roadmap on how best to develop the systems based on international best practice, capacity building for federal and regional experts using both national and international experts, technical assistance through appointing senior plant protection experts to work with regional desert locust control units.

Component 4: Project Management. Under this component, financing will be provided for project management activities including (a) the hiring of a pest management expert; and, (b) operating costs for monitoring (particularly related to financial management and safeguards), technical backstopping at different levels; and (c) communication and information exchange. Regarding the latter, a particular effort will be made to enhance communications about desert locusts and their negative impact on affected communities as well as to disseminate information generated by the early warning systems. Details of communication activities are provided in the PIM.

2.2.2. Project Framework

The expected outcome under this project is to reduce the vulnerability of farmers, agro-pastoralists and pastoralist to limit desert control infestations by supporting control strategies for prevention, monitoring early warning, reaction and mitigation at the national level and strengthening the plant health system. The following are major key intended result areas of this project.

- Emergency locust-control measures are improved (cost effective, timely), and undertaken in environmental and social safe and sustainable manner;
- Locust Control operations implemented according to plan and FAO guidance and FAO's guidelines;
- Pesticide management meets international safety regulations;
- Livelihood of people affected by locust infestation addressed;
- Percentage of beneficiaries receiving inputs from project to restore livelihood increased;
- Hectare of pasture land rehabilitated by the project increased;
- Desert locust prediction and mitigation mechanism established by end of project (Country level data storage, data analytics, data interpretation capability built).

2.3. Program/Project Target Areas and Beneficiaries

2.3.1. Project Target Areas

In general, the EELRP will be working in the PSNP implementing regions specifically in locust infested areas of Afar, Eastern Amhara, South eastern and eastern Oromia, Somali, southern districts of Southern Nations, Nationalities and Peoples (SNNP), Southern Tigray, and Dire Dawa City Administration. In total, 153 woredas are invaded by the desert locust at varying degrees of infestation scope of impact.

The project will be implemented in the 153 woredas affected by the locust infestation and new areas to be identified as the locust management and control advances. The new areas will be defined as the migratory routes and infestation areas are informed by Ministry of Agriculture (MOA) surveillance and response team. The proposed project areas demonstrate considerable diversity in terms of water resources and landscape, from lowland, midland and highlands, and livelihoods from agricultural, agro-pastoral and pastoral.

The project implementation front line regions by now are Afar, Somali, Amhara, Oromia, SNNPR, Tigray, Dire Dawa administration. However as migratory routes and infestation areas new areas of Harari, Gambella and Benishangul gumuz Regions will be covered as deemed necessary. The project is planned to be implemented in Desert Locust breeding and invasion districts in all regions in Ethiopia.

According to the forecast made and communicated by FAO Head Quarter Desert Locust Information Service a total 300 districts/woredas would be attacked by desert locust infestation. Overall coverage of the Desert Locust invasion cannot be limited at this stage and the breeding and invasion regions, zones and districts could be increased if urgent control measures have been undertaken (see Figure 1 below).

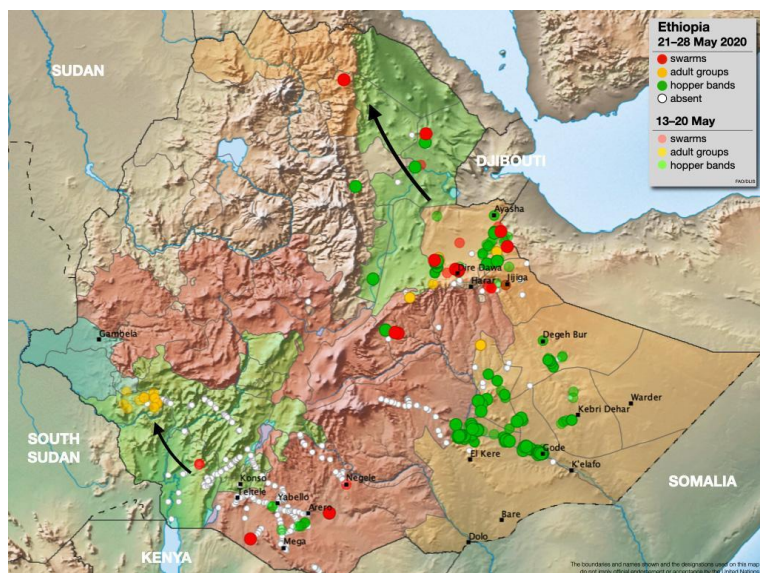


Figure 1. Desert Locust swarm and hoppers presence and absence survey, distribution areas in Ethiopia (May 21, 2020)

i. Desert Locust Breeding areas and Seasons

In Ethiopia there are three Desert Locust breeding areas, these are the following:

Spring breeding season takes place from March-May and covers Somali region Siti, Fafen, Cherer zones, Dire Dawa, Eastern and south eastern Oromia East and West Harerghe zones, East Bale zone Somali region border districts and Afar region, East Amahara Worababu, Habru and Kobo districts.

Summer breeding season takes place from June –September and occurs in Afar, East and North West Amhara, South east and North West Tigray, east and north east Somali region districts, Dire Dawa and East Oromia region.

Winter breeding season takes place from October – February and usually occurs in South eastern Somali region Dolo, Cherer, Koray, Shebele, Afider, Negob, Genale and Dawa zones, South east and South oromia and SNNPR southern and central zones.

A total 300 districts are under the projection according to the forecast given by FAO Desert Locust Information Service in the Head Quarter of FAO. Overall coverage of the Desert Locust invasion cannot be limited at this stage. However key and hot spot regions, zones and districts for breeding and invasion of Desert locust vis-à-vis lifecycle and breeding seasons have been identified (see annex 1).

ii. Aerial Bases, Clusters and Sub-clusters areas functional coordinating units

In the country where the Desert Locust infestation is very high and areas have been covered in this project are characterized in different Clusters depending on their locations and type of spraying activities. Accordingly the campaign team has been established in 7 Areal Bases in various part of the country which are centred to cover all spraying operation. Moreover 10 Major Clusters and respectively 37 Sub clusters have been established in various parts of the Regions, respective zones and woredas. In these units major Desert Locust surveillance, control and decisions will be made, and also pre spraying activities such as calibration of spraying instruments and pesticide selection and pesticide measuring and formulation for spraying activities will be carried on in this units as appropriate.

iii. Pesticide Store areas

Chemical stores are found in various part of the country. At centre (national Store) a store with capacity handling more than 400,000lt; in East Dire Dawa with the capacity handling 100,000 lt; In Samara 100,000lt capacity; 100,000 lt in Jigjiga; 50,000 lt capacity in Hawassa; 100,000 lt capacity in Bishoftu; 100,000 lt in Kombolcha; 100,000 lt in Bahir Dar; and Mekele 100,000 lt capacity are found and there are also medium storage in all zones in the country. However as one of the key informant indicated about the stores situations, some of these pesticide stores are not good enough. Hence renovation of these stores has been required.

2.3.2. Project Beneficiaries

As it is mentioned above, the EELRP project target area covers desert locust infested region and City administration of the country. Estimate shows over 2.4 Million hectare of crop and pasture land will be affected by desert locust. Under Phase 1 of the project 80% of crop and pasture land will be controlled and 78,000-hectare support will be provided to households to cover seed, fertilizer and agrochemical expense and 81,000 hectares of pasture land will be re-habilitated by providing seed support to affected community. In Phase 2 of the project, 202,000 hectares of pasture land will be rehabilitated while locust control activity will continue. The number of beneficiaries is estimated to be 230,000 household in both phase 1 and Phase 2.

The EELRP beneficiary: By component, the beneficiary profile will necessarily vary. For example, the direct beneficiaries from Component 1 swarm control activities would be quite vast. It will benefit those who use resources threatened by the locusts for income generation—e.g., farmers, pastoralists/herders who use the pastures and rangelands for their livestock, as well as users of common pasture and forest areas, and those who rely on agriculture and livestock production for their jobs (i.e., traders, transport, etc.). The Project will track the number of people trained in locust surveillance and identification and insecticide application.

The beneficiaries of component 2 will be tracked according to the support they receive (e.g. cash transfer, cash for work, farmer “packets”, animal fodder and/or fodder seed, etc.). Special attention will be given to ensure that women, female-headed households and minority/vulnerable groups have access to the Program. Eligibility criteria and targeting approaches will be described in the operational manuals. The safety net program that already exists in the MOA can provide cash transfers to the EELRP.

3. Environmental and Social Context and Baseline Conditions of the Project Area

3.1. Environmental and social baseline of EELRP Project intervention areas

This section describes the environmental and social baseline on the basis of the particular target regions. The Desert Locust Response Project is implemented in wide-ranging agroecological and administrative regions and Woredas characterized by varied socio-economic and cultural, biological environment and Physical environment. The Desert Response Project will be implemented in 153 districts invaded hot spots in six regions and one city administration including Afar region, Somali region, Dire Dawa City Administration council, Southern Tigray, Eastern Amhara, South eastern Oromia, and southern districts of SNNP region.

A. Tigray Regional state

Topography

Tigray Regional State accounts for a total land area of 53,000 km². Altitudes range from 550 meters which is the Tekeze gorge up to 3,935 meters above sea level which is Kisd Gudo. Topography of the region is characterised by chain of mountain ranging from 3,250-3,500 meters, cliffs, ledges, and precipice.

Climatic condition

The region is situated in 6 ecological zones namely desert, kola, woina dega, dega and wurch. The mean annual rainfall for the region ranges from 600 mm in the north-eastern part to 1,600 mm in the woredas lying in the western part. Temperature ranges between 16°C and 20°C in the eastern and central highland part while in the lowlands of the western zones it is 38°C to 40°C.

Geology and Soil

Regarding the geology of the Tigray region it is characterised by low grade metamorphic, Palaeozoic, and Mesozoic rocks. It includes tertiary volcanic, quaternary deposit and acidic or basic/ultra-basic intrusion. The region is rich in mineral resources which include gold, copper, iron, ore, zinc, lead, and nickel. It is also famous for its non-metallic minerals including Asbestos, silicon, kaolin, graphite, gypsum gemstone, marble, granite slate, limestone and dolomite.

Vegetation/Forest and wildlife (flora and fauna)

The Tigray region is home for Kafeta Shiraro National park, Dess`aa National priority forest area. The major vegetation in the region includes woodland and savannah, junipers woodlands, acacia woodlands and savannah. The major plant species include acacia trees mixed with savannah; juniper trees mixed with savannah and mixed deciduous woodland. It also has grazing grass land, scattered bushes and scrub and dense forest covered land. There are also a number of wildlife and birds mainly Lake Ashenege.

Land use/Land cover

Regarding land use of, in Benishangul region about 77.4% of the total land is covered with bushes and shrubs lands, 11.4% forest land, about 3.2 % cultivable land, and 2.3 % grazing land and about 2.3% .

Water resources

The region has water resources Tekeze river, Mereb Basin, Afar Basin and Angereb valley, Mai Tell River and Mai Hitsatsa River. There are also small rivers namely such as Guba, Worii, Berber, Arqoa and Terter. Lake Ashenge also found in the region.

Demographic and socio-economic

Socio-demographic

According to the 2017, CSA censuses the population of the region is estimated to 5,247,005. The density in Tigray Region in this time was 116 persons /square kilometre. Other ethnic groups in Tigray consist of Amhara (1.63%), Irob (0.71%), Afar (0.29%), Agaw (0.19%), Oromo (0.17%) and a Nilo-Saharan-speaking Kunama (0.07%). In the region, 95.6% of the population are Orthodox Christians, 4% Muslims, 0.4% Catholics and 0.10% Protestants. The staple crops in western lowlands of Tigray are sorghum, maize, teff, barley and wheat. Tigray is home to typical Ethiopia's grain species, notably different varieties of wheat and barley adapted to shorter or longer rainy seasons. Regarding health system, in the region there are 716 health posts, 212 health centres and 34 hospitals.

B. Afar Regional State

Topography

The Afar region is home of the Danakil Desert and Erte Ale, an active Volcano. It is the lowest off all Ethiopian lowlands. Afar elevation ranges from 1500m above sea level to 126m below sea level. Its topography slopes downward west to east in to the Afar Triangle, a geological depression caused by the junction of three divergent plates (part of the Great Rift Valley). The Afar Triangle is bordered with the by the Ethiopian plateau and escarpment West; to the north –east by the Danakil block; to the south by the Somalia plateau and escarpment and the south east by the Ali-Sabieh block.

Climatic condition

The climatic condition of Afar region is mostly hot, desert type and partially dry. The entire region gets about 150-850mm of rainfall per year and the majority the rainfall is in the southern and western part of the region. The average temperature year-round anywhere from 32-43°C and ranges from 25°C up to 52°C.

Geology and Soil

The Afar Depression, a plate tectonic triple junction is found in the Afar Regional State. The continuous process of volcanism results in the occurrence of major minerals including potash, sulfur, salt, bentonite and gypsum. There are twelve soil types available in the region of which 49% soil type are sandy and rocky.

Vegetation/Forest and wildlife (flora and fauna)

In the Afar Depression biome which is characterized by the desert scrubland the vegetation is mostly confined to drought-resistant plants small trees belonging to the species of the dragon tree such as shrubs and grasses. Afar is home to peculiar wildlife including African wild ass, Grevy's zebra, soemmerring's gazelle, beisa, wild fox, wild cat, cheetah in the region's national park. It also has birds which include ostrich, the endemic Archer's lark (*Heteromira archeri*), secretary bird, Arabian and kori bustards, Abyssinian roller and crested francolin in the Mille-Sardo Wildlife Reserve in southern part of the plain.

Land use/Land cover

Land use of the region 7% of the region is suitable for agriculture (crop production), 22.4% of the total could be developed for agricultural activity. However, only 1.2% of the total areas suitable are utilized.

About 25.7% of the total land is used for grazing whereas about 70.9% of the total area of the region is denuded and devoid of vegetation.

Water resources

The Awash River, Mille and Logia which are tributaries of the Awash River traverse the region. Abbe Bil, Afambo and Adebil lakes connected to the last section of the Awash River are found in the region.

Socio-demographic

Land in Afar is divided into sultanates, which are further divided into tribe and clan territories (Getahun, 2004). Afar national Regional State covers 94,760 km². Based on the 2017 projection by the CSA Ethiopia, the Afar regional state has a population of 1,812,002. About 346,000 of population are urban inhabitants and 1,466,000 were pastoralist. As per the 2007 CSA of Ethiopia census 95.3% of the populations are Muslim. The region has dry land with limited agricultural potential, other than the Awash River valley. The main source of livelihood for an estimated 92 percent of the Afar population is rural pastoralism, herding cattle, and sheep goat and camel and agro-pastoralist. The region has 325 health post, 105 health posts and 6 hospitals.

C. Amhara Regional State

Topography

The region's topography setup has a much diversified nature. Lowland, midland and highland plains, mountains, rugged lands, undulating landforms, chains of plateaus are common land features in the region. Amhara national Regional State covers 161,828.4 km². There are highlands (above 2,300 meters above sea level) accounts for 20%, semi-highlands (1,500 to 2,300 meters above sea level) accounting for 44% and lowlands(below 1,500 meters above sea level) making up 28%. The region topography embraces plains, gorges, plateaus, hills and mountains. The altitude ranges from low of 500 meters to high of 4,620 meters found at the peak of Rash Dashen.

Climatic condition

The region has climatic zone ranging from hot dry tropical (800-1830m above sea level), sub-tropical (1830-2440m above sea level), temperate (2440-3000m above sea level), and alpine(over 3000m above sea level). Highlands above an altitude of 1500m above sea level experiences relatively cool temperature conditions in contrast to the lowlands. Regarding temperature tropical zone which is known as kola get average temperature of 27 C and 510mm rainfall per annum. Whereas the Sub-tropical (Woina Dega) has average temperature of 22C and annual rainfall ranging 510mm-1530mm. The cool zone (Dega) has 16 C and annual rainfall ranging between 1530mm-2000mm. Furthermore, the region has four season; kiremit (summer), Belg (Autumn), Bega (winter), Tsedey (spring).

Geology and Soil

The Precambrian rocks, cenozoic rocks and Mesozoic rock cover most part of the Amhara Region. In the region the six major soil unit include Arthric Acrisda, Rendizinas, phaeozems, luvisols, Vertisols, Nitisols, Leptosols, Gelysolsl and Fluvisols. The state of Amhara has mineral resources such as coal, shell, limestone, blignite, gypsum, gemstone, silicon, sulfur and bentonite. Hot spring and mineral water are also exists.

Vegetation/Forest and wildlife (flora and fauna)

Kolla, tropical zone is the zones of desert and thorn shrub vegetation, flora include the tamarid giant sycamore, acacia, myrtle and zizygium, euphorbia. Also crops include cotton, tobacco, dura, and sugar cane. Woina dega, sub-tropical zone is warm and moderate. Average temperature is 22 °C. This is zone where most cereals are grown, including soft grains, barely, teff, maize. Dega is cold. This is adopted for raising livestock and sustainable growing barley and wheat, teff, beans, flax, temprature fruits. Trees include the wild olive (*Olea chrysophylla*), juniper (*Juniperus procera*), kosso tree(*Hegenia abyssinica*). Regarding wildlife walia ibex, Semien fox, Gelada-baboon, Grey Dulker, Klipspringer, Hyenas and Crocodile are among the twenty –one species of which three are endemic are found in Semen mountain national park. Wild fowls, Francolins, Cranes, Ibises, and Stocks are among the birds that exist in the ANRS.

Water resources

Amhara`s biggest rivers include inter alia, ABay Belese, tekeze, Angereb, Athbara, Mile, kessem and Jema. It also has Tana Lake, Ardibo and Logo.

Demographic and socio-economic

According to the 2007, CSA census Amhara national Regional State covers 154,708.96 km². Regarding ethnic distribution about 91.4% of the region is inhabited by sematic language speaking group of Amhara followed by Agaw and Oromo ethnic group. The dominant language family is the semitic followed Afro-Asiatic language communities, including the Agaw/Awi, Oromo, Agaw/Kamyr and Argobba. In terms of religion, orthodox Christian followers are 82.5% and about 17.2% are Muslim followed by protestant religion followers. The region is one of the major teff producing areas in the country, in addition barely, wheat, oil seeds, sorghum, maize, oats, beans and peas are the major crops produced in Amhara region. Cash crops such as cotton, seism, sunflower, and sugarcane grow in the vast and virgin tract of the regions lowlands.

D. Oromia Regional state

Topography

The Oromia region covers an area of 353,690 km² and has topography characterized by high and rugged mountain range, undulating plateau, and panoramic gorges and deep incised river valleys and rolling plains. The highest point of the region which is second in the country is mount Batu with 4607 meters. The lowlands area with the altitude of (500-1500meters above sea level), whereas semi-highland within the altitudinal range of (1500-2300 meters above sea level) and highlands areas (2300-3000 MASL).

Climatic condition

The climatic condition of the region is characterised by dry, tropical rainy and temperate rainy climate. It differs from the southeast lowland to central and north western highland. The East and southern part of the regions dominated by arid climate while the central and north western parts are more temperate climate. The temperature is affected by the altitude ,hence ; the mean annual temperature ranges 20C-25 C in the lowlands area with the altitude of (500-1500meters above sea level) , whereas semi-highland within the altitudinal range of (1500-2300 meters above sea level) gets mean annual temperature of 20C-25C and highlands areas (2300-3000 MASL) have mean annual temperature range of 10C-15c. Regarding the Rainfall the region gets RF ranging as low as 200mm in the southeast to 200mm in the north western part of the region. This target area of the Desert locust Response project of Southern Eastern Oromia receives lower annual rainfall and lowland.

Geology and Soil

The region consists of the rocks of the four main geological eras of Precambrian, the Palaeozoic, Mesozoic and Cainozoic. Besides, the region is within the range of The Great Rift Valley of the East Africa making it tectonically unstable. The major types of soil in the region include Luvisols, Fluvisols, Andosols with varied agricultural value.

Vegetation/Forest and wildlife (flora and fauna)

To begin with, the region is endowed with diverse flora and fauna. The Oromia region covered with dense forests in the central, south western and western area. In the southern and south-eastern where the deserts Locust Response project target area are covered with sparse vegetation, bushes and scrubs. The vegetation types in the region include coniferous forest, broad leaved forest, woodland and savannah, grass land, riverine forest and wetlands. It is home for the country's national parks such as Awash National Park, Bale Mountain National Park, Abijatta -Shala Lakes National Park, Dati Wolel National park, Arsi Mountain, Yabelo National Park. And Wild life Sanctuaries such as Babile Elephant Sanctuary, Senkele Swayne's Hartebeest Sanctuary. It also includes Lepis Forest Community conservation area. Besides it has also wildlife Rescue centres, controlled hunting areas.

It hosts endemic wild animals including Red Fox, and Minilik bushback in Bale Mountain National park and the likes of loryx, kudu, Caracal, Aardavark, Colobus Monkey, Green monekeys, Baboons, Leopards, Leopards, Klipspringer, Hippo, Seemering's, Gazelle, Grevey's Zebra and Cheetah. The region is the home for around 800 bird and 100 wild animal species. Given the region has huge water resource it is also home for fish and other aquatic life.

Water resources

The region has rich water Resources Rivers, rift valley and crater lakes and ground water. Among the main rivers which flows to the different region of the country Awash, Gibe, Wabe Shebele, Dabus, Guder, and Didessa. Rift valley and crater lakes like, Ziway Langano, Abijata, Shala Bishoftu, Kuriftu, Hora-kilole, and Hora-arsedi

Demographic and socio-economic

As per 2017, CSA forecast the population of Oromia region is about 35,467,001. The dominant majority (90%) of region's population live in the rural part of the region and its main source livelihood is Agriculture. The rural residents of this region account 89.5% of the total population. Over 90% of the people of Oromia live in the rural area, and agriculture has remained the source of livelihood for the overwhelming majority of the people. Regarding health system, the Oromia regional state has 6559 health posts, 1699 health centers and 33 hospitals.

E. Somalia Regional state

Topography

Somali Regional State accounts for a total land area of 250,000 km². The Altitudes range from 900 meters up to 1,000 meters above sea level. Topography of the region is characterised by the dominant majority 80% is flat and 7% mountainous.

Climatic condition

Resulting from the altitude of the region about 80% of the total area kola (lowland), 5% dega and 15% of the area is temperate or woyna dega. The maximum temperature of the region ranges 32-40 C in the lowlands. Whereas the woyna dega areas or temperature range within 20-28 C. regarding the rainfall of the region gets mean annual rainfall range 300-500mm.

Vegetation/Forest and wildlife (flora and fauna)

The Somali region is the home for the Geralle National Par, Babilie Elephant Sanctuary, Dembel and Shenile Meto controlled hunting areas.

Water resources

The region has water resources Wabeshebele, Genale and Weybe Rivers.

Demographic and socio-economic

As per the 2017, CSA population forecast the total population of the region is estimated to be 5,748,998. The region has 1139 health posts, 195 health centers and 9 hospitals. The majority of the population of the region earn their livelihood through animal rearing. However, they also engage in production of crops mainly sorghum and maize. The region has about 15.2 million domestic animals of which 53% or 8 million are sheep, followed by goat making up about 20% and 15% of camel. Somali Region is the largest of Ethiopia's pastoral regions, with a population of about four million people (Devereux, 2006). Most are pastoralists, though there are some agro-pastoralists and pure farmers, and about 14% are urbanised.

F. SNNP Regional State

Topography

Covers an area of 111,000 km², which accounts for 10% of the total land area of the country, It is located in the southern and south-western parts of the country. The region shares common borders with Sudan in the west, Kenya in the south, Gambella region in the northwest and Oromia region in the east and north. The region has diverse ecology. Lowlands account for 56 % of the total land area, and accommodate all the pastoral and agro-pastoral communities of the region.

Climatic condition

About 56 % of the total areas of the Region are found below 1,500 meters elevation, which is categorized largely as hottest low land ("Kolla"). The rest 44% is found in the temperate climatic zone. The mean annual rainfall ranges from 500 - 2,200 mm. Its intensity, duration and amount increases from South to Northeast and Northwest. The mean annual temperature is in general ranges from 15°C to 30°C.

Geology and Soil

The State is rich in natural resources. These include, water, mineral, fauna and flora. Some of the minerals of the region include gold, coal, mineral water, clay, ditomite, scoria, limestone, mica, nickel, iron-ore, and asbestos. Some of the major tourist attraction sites of the Region are lakes like Awassa, Abaya and Chamo. Tropical forests such as Kaffecho, Shekecho and Omo best tourist destination sites in the country. The Nechsar, Mago and Omo national parks are also found in this region.

Vegetation/Forest and wildlife (flora and fauna)

There are 23 kinds of wild animals and 300 species of birds. Some of the wild animals found in this region are Elephant, Lion, Giraffe, Leopard, Zebra, Monkey, Lesser kudu, Water Buck, Crocodile, Rhinoceros, Warthogs, and Buffalo. Tropical forests such as Kaffecho, Shekecho and Omo best tourist destination sites in the country. The Nechsar, Mago and Omo national parks are also found in this region.

Water resources

Many perennial and seasonal rivers are found in this State. These include, Omo, Gojeb, Mago, Segen, Woito, Akobo, Dima, Wabi, Wolga, Bilate, and Genale River. Among the known Rift Valley lakes are Awassa, Abaya, Chamo, Chew Bahir and Rudolf. . These rivers can be utilized to produce food crop and fish and for irrigation and hydroelectric development.

Demographic and socio-economic

According to 2017 estimation the population of the region is estimated about 19,170,007. Regarding health facilities in the region, there are 3874 health posts, 1123 health centers and 72 hospitals in the region.

There are about 45 ethnic groups in the Region. Sidamigna Gruagigna, Wolayitagna, Hadiyigna, Keffigna, and Kembatigna are widely spoken language in the region. Other languages such as Gamoigna, Malo, Goffa and Gedeo are also used for communication purposes. The working language of the state is Amharic. Coffee is the most important cash crop. Other major crops of the region include maize, teff, enset, potato, and wheat.

Benna Tsemai Woreda

Benna Tsemai Woreda is one of the eight Woredas in South Omo Zone of SNNPR with total land coverage of 254,905 hectares. The Woreda is about 483 kilometers far from the regional center, Hawassa, and 42 kilometers from the zonal administrative city, Jinka. It is bordered to the south with Konso, to the north with Ari, to the West with Hamar, and to the East with Maale. Agro-ecologically the Woreda is predominantly semi-arid. Agro-climate zone of the Woreda consists of Kolla (78%), Dry Woyinadega (19%) and Berha (3%). The Woreda is located at an altitude range of 526–1800 above sea level. The Woreda is covered with different variety of vegetation mainly indigenous trees, shrubs, and bushes. The Woreda is endowed with two main rivers of Woyito and Kako. Maize and Sorghum are the two main crops produced in the Woreda. Administratively, in the Woreda, there are four indigenous ethnic groups: Benna (65%), Tsemai (28%) and Birayle (0.2%) and the remaining 6.4% consists of other ethnic groups: Konso, Wolayita, Ari, Maale, etc. The total population of the Woreda is 66,941. The Woreda comprises of 31 Kebeles. Of the total 31 administrative Kebeles in Benna-Tsemai Woreda, the two Kebeles selected for the study are Alka Kibo and Shaba Argamanda.

G. Dire Dawa City Administration

Topography

Dire Dawa is located at foothills of the mountains located in the southern part. The elevation of the Dire Dawa city administration ranges 950-1250 meter above sea level.

Climatic condition

Dire Dawa has a hot semi-arid climate. The mean annual temperature of the city is 32.8 C, while its average minimum temperature is about 19.0 C. The aggregate average annual rainfall from the two rainy seasons the city experience is about 583 mm (CSA, 2007).

Geology and Soil

The Dire Dawa administration overlaid by limestone and sand stone deposit which started during Triassic period of Mesozoic era, and the Jurassic and Cretaceous periods of the same era. The formation of sandstones and limestone has been deposits left over the crystal basement of the pre-Cambrian which are 600 million years old. The crystalline basement is found exposed to the surface in most parts of the region and includes among others, granites, mica-schist, quartz, gabbros and diorites (Eylachew, 1998).

Vegetation/Forest and wildlife (flora and fauna)

Dire Dawa administration which is located in the eastern part of the country has dense acacia woodland species occupying a total of area of at 1220 ha mainly found in Hurso, Jeldessa, Gerba-Anano and Chirimiti kebelles. However, the acacia woodland vegetation of the administration has been subjected to degradation due to charcoal production, livestock pressure, and recurrent drought. The Dire Dawa

administration is have deloni Regia commonly known as flamboyant tree, flame tree, royal poinciana, which is known as Dire Dawa Zaf. Dire Dawa is also home to bird species including Hooded Vulture, Tawny Eagle, Pied Crow, Think-billed Raven and Little Egrets.

Water resources

Dechatu River, whose bed can be crossed with foot during the dry season, is one of the main water resources with its tributary in the Western outskirt of the city which is Gorro River. According to the CSA, as of 2004, 90.76% of the total population had access to safe drinking water: 69.61% of rural and 99.48% of urban inhabitants having access.

Demographic and socio-economic

Socio-demographic

The city administration covers area 1,213 km². According to 2015 CSA population projection the Dire Dawa city administration is about 440,000. The ethnic distribution of the city administration is 46% Oromia, 24% Somali, and 20% Amahara (CSA, 2007). A number of Ethiopian language including Afan Oromoiffa, Amharic, and Somali, language are widely spoken. Regarding with the most believers I Dire Dawa is Islama with 70.85 and 25.71% are Ethiopia Orthodox. In Dire Dawa 13 health centres and 1 hospital are available.

3.2. Project Areas Agro-ecological Features

According to the Ministry of Agriculture Agro-ecological classification framing environmental parameters (temperature and moisture), Ethiopia has classified in to 18 major Agro-ecological zones. Accordingly most of the Desert Locust breeding project Woredas are located and classified under these five Agro-ecological zones as follows.

- Hot to warm arid low land plains: (Shinile, Adigala, Aysha, Denbel, Jijiga, Gode, Kabridehar, Shilabo, Worder, Geladi, Berano in Somali region), Chifira, Ewa, Adaar, Mile, Afdera, Elidar, Erebit, Abiala, Kuri, Asayta, Afambo, Dufti, yalo, Gulina, Megale, Gewane, Gelealo, Duecha, Ambera, Awash districts in Afar)
- Hot to warm semi-arid low land plains: (Worababu, Habru, Kobo in Amhara region, Raya Azebo, Raya Alamata in Tigray region, Chineksan, babile, Dawe, Rayitu, Dubluk, Teletele, Yabelo, Moyale, Mio, Dilo, Dhas, Guchi, Liben, Wachile, Gorodola, Madawolabu in Oromia region and Benatsemay, Hamer, Dasenech, Male, Ngangato Districts in SNNPR.
- Hot to warm sub-moist low land: (Adilieala, Semurobi in Afar, kewet, Efrata, Berehet, MiniJarshenkora, Giletumuga, Arsumafurti, Bati, Harawe in Amhara, Doba, Meiso, Gorogutut, Kersa, Odabultu, Dello mana, Aranabuluki in Oromia region, Derashe, Ale, Segen zuria, Burji, Amamaro, Marata garda, Kamba, Ubadebretshay, Abaya, Humbo, Duguna Fango, Abaya Abala in SNNPR distiricts.
- Hot to warm sub-humid low lands: West Guji Districts in Oromia region
- Hot to warm humid low land: Gambella districts

In all woredas covered under this project, as per the desert locust breeding and infestation, Aerial and/or Ground pesticide spraying activities will be carried out as appropriate. For effective Aerial spraying operation made at various levels, the campaign teams for surveillance and control of Desert Locust infestation have been clustered in various part of the project sites. Major pesticide stores are also prepared at various part of the country.

3.3. Ecological Feature and Land use of the project area

3.3.1. Ecological Feature of the project area

It has been well known that the country's Macro and micro climate condition are highly variable. Rainfall distribution of the country is seasonal. The major rain season is from June to September following by short rainy season that occurs between February and April. The mean annual rainfall ranges from 500mm to

2800mm. Similarly, mean annual temperatures range from below 10 to above 30°C. Because of the combined effects of the above factors, the country is endowed with diverse ecosystem. As it has been mentioned above the pest prevention and control activities (including areal and ground spraying) may cover most part of the country's agricultural, agro-pastoral and pastoral lands.

Hence this ESMF has made the characterization of agroecological zones of the project sites as stated above in section 3.3.1., and special ecological areas that requires special attention during the whole lifecycle of this proposed project. Detailed agroecological, demography, topography and other features of the project area with respective project Regions and respective representative woredas have been addressed in detail in the Project's ESMF.

Some of areas having special future in Desert Locust breeding and invasion regions, zones and districts which will be highly considered in the implementation of the ESMF, have been identified before the commencement of the project. The most known areas of national parks and forests where non target areas of wild life conservation takes place are Adigala wild life park in Somali region between Biyo kobobe and Adigala; Awash National and Gewane parks in Afar region; Bale mountains national park extended to Delomana and Aranabuluki low lands, Arana tropical rain forest in Bale zone, and Adola forest in Oromia region; and Nechsar, Salamago and Cheberachuchura parks in SNNPR which are special feature areas where several times Desert Locust swarms invasion covered and chased out by the area community. According to FAO EHS (Environmental Health Standard) it is advised to use 1km as buffer zone to protect the national parks and tropical forests ecosystem. Furthermore major water bodies located in the project areas were identified. Accordingly based on the nature and features, buffer zones for these special ecological features have been delineated, see Table 1.

Table 1. Summary of special ecological and agronomically sensitive areas and proposed buffer zone limit

S.N	Regions	Special features areas having risk of pesticide application	Planned means of risk reduction- No pesticide spraying Zone
1	Somali	Adigala wild life park	1km buffer zone will be free
		Ponds used as source of drinking water for animals	500 meter buffer zone will be free
2	Oromia	Bale national park, Harana tropical rain forest	1km buffer zone
		Ponds and rivers	500 meter
3	SNNPR	Salam ago, Nechsar, Chabara churchra parks	1km
		Ponds, lakes and rivers	500 meter
4	Afar	Gewanene and Awash parks	1km
		Lake Abe, ponds	500 meter
5	Amhara	Churches lalibala, Gishen, Jawaha river valley in Efrata and Jile districts	1km
		Bee hives around Bati, Dawe harawa, Kobo	500 meter
6	Tigray	Bee hives in Raya	500 meter
7	Dire Dawa	Ponds and other water sources	1km

3.3.2. Land use pattern of the Project Area

Regarding the existing land use pattern and farming practices, in general, small scale subsistence farming and fragmented land holding, and communal pastureland is dominant in Ethiopia due mainly to various

interrelated factors. Thus conventional low-input and low-output agriculture production system has resulted in high rates of environmental land degradation.

4. Policy and Legal Context

4.1. Legal, Policy and Administrative Framework

This section describes and assesses the National policy; legislative and institutional issues; the World Bank Environmental and Social Framework and its applicable ESSs for this proposed project; and the international conventions that are most relevant to the implementation of the ESMF as required.

ESIA was recognized at the United Nations Conference on Environment and Development (UNCED) in 1992 where Principle 17 of the Rio Declaration states: “EIA as a national instrument shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.”

4.1.1. National Policies and Strategies

The 1995 Constitution of the Federal Democratic Republic of Ethiopia urges the proponent to present the ESIA of his/her project. The following administrative, legal and policy are worth mentioning to abide the implementation of the proposed project in line with their requirements.

The Constitution of the Federal Democratic Republic of Ethiopia (FDRE) (Proc. 1/1995)

The 1995 constitution of Ethiopia is the base for the formulation of policies and strategies relevant to social development, environment protection and economic growth, in Articles 43, 44 and 92 and articles 40, 41, 42, 89 and 90 which refer to environmental and social issues respectively.

It provides a basic framework for Environmental and Social Impact Assessment (ESIA) system. The concept of Sustainable Development, Environmental Rights, and Environmental Objectives are stipulated in the constitutional article 43, 44, and 92 respectively.

Article 43: The Right to Development

1. The Peoples of Ethiopia as a whole, and each Nation, Nationality and People in Ethiopia in particular have the right to improved living standards and to sustainable development.
2. Nationals have the right to participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community.
3. All international agreements and relations concluded, established or conducted by the State shall protect and ensure Ethiopia’s right to sustainable development.
4. The basic aim of development activities shall be to enhance the capacity of citizens for development and to meet their basic needs.

Article 44: Environment Rights

1. All persons have the right to live in a clean and healthy environment.
2. All persons who have been displaced or whose livelihoods have been adversely affected as a result of State programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance.

Article 92: Environmental Objectives

- Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment.

- The design and implementation of programs and projects of development shall not damage or destroy the environment.
- People have the right to full consultation and to the expression of views in the planning and implementations of environmental policies and projects that affect them directly.
- Government and citizens shall have the duty to protect the environment.
- Furthermore, in Ethiopia, environmental management is grounded in a policy and legal framework that governs rights and obligations of citizens and enterprises.
- Article 42, sub-article 2 of the FDRE constitution recognized workers right for healthy and safe work environment.

The major ESIA policy and legal framework of Ethiopia are provided below:

The Environmental Policy of Ethiopia (FDRE, 1997)

- The Environmental Policy of Ethiopia (EPE) was issued in April 1997. The overall policy goal is to improve and enhance the health and quality of life of all Ethiopians and promote sustainable social and economic development through sound management and use of natural, human-made and cultural resources and their environment as a whole, “so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs”.
- The policy consists mainly of guiding principles and various sectoral and cross-sectoral policies for sustainable environmental management. The policy seeks to ensure the empowerment and participation of the people and their organizations at all levels in environmental management activities, raise public awareness and promote understanding of the essential linkage between environment and development. In addition to its guiding principles, the policy addresses sectoral and cross sectoral environmental issues. The policy emphasizes the early recognition of environmental issues in project planning at all levels of administration.

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.

Ethiopian Water Resources Management Policy (1999)

- The 1999 Water Resource Management Policy of Ethiopia gives due emphasis to the sustainable water supply. Water resources management and administration in the country should be based on Ethiopia's Water Resource Management Policy and the water resources laws of the country as indicated in Proclamation No. 197/2000.
- 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.
- The policy also sets an integrated intervention framework to implement community-based water supply, sanitation and hygiene. The policy indicates that water supply and maintenance operations need cost recovery and user contributions. The policy became operational following with the subsequent issuances

of the Water Sector Strategy (2000), water sector development program (2002), Water and Sanitation Universal Access Plan, UAP (2005) and the Water, Sanitation and Hygiene (WASH) Memorandum of Understanding (2006).

Agriculture Policy of Ethiopia (APE)

- Agriculture Development Led Industrialization's (ADLI) core principle is that increased agricultural productivity is the engine for both agricultural and industrial growth i.e. green revolution technologies substantially improve the low productivity of traditional Ethiopian farming systems. It is aimed at transforming the country's economy into a well-developed and prospered one. This agricultural policy and strategies is based on the objective realities of the country and its prime objective is to accelerate agricultural production and productivity at all levels.
- The ADLI is reflected in the Rural Development Strategy (2001) which further stresses the role of increased agricultural production as the basis for the country's development. The strategy is driven by the quest for ensuring food security and enhancing rural employment opportunities. The Strategy is made up of eight building blocks; namely: Technology generation and dissemination; Food security, including resettlement and water harvesting; Agricultural extension and vocational training; Agricultural marketing (of inputs and outputs); Rural finance; Development of cooperatives; Rural transport; and Rural land administration and management.
- In most of the above building blocks, environmental and social considerations are included in an implicit manner. Explicit consideration is rather given to the need to sustain production through use of appropriate technologies, development of tailored extensions and trainings to agro-ecological zones, and sustainable land management and land use.

Sustainable Development and Poverty Reduction Strategy Program (SDPRP, 2002)

The Sustainable Development and Poverty Reduction Strategy Program [SDPRP], issued on July 2002, outlines the fundamental development objectives of the government of Ethiopia to build a free-market economic system that will enable the economy to develop rapidly, and the country to extricate itself from poverty and dependence on food aid, where the poor people are the main beneficiaries of the economic growth. The program recognizes the importance of environmental protection as a prerequisite for sustainable development and treats it as crosscutting issue.

Accordingly, it points out three priority areas for action: strengthening and expanding on-going efforts to address land degradation, deforestation, overgrazing, soil erosion, loss of soil fertility and the disruption of the hydrological cycle, by giving special attention to highly degraded, drought prone and food insecure areas; strengthening regulatory and institutional capacity; and strengthening the measures currently under implementation to preserve, develop, manage and sustainably use biodiversity resources deficit highland areas of the country. Accordingly, water harvesting, proper land utilization and environmental rehabilitation are identified as the top priority areas of intervention. These help to combat drought and famine, which are induced by negative environmental manifestations such as desertification and land degradation.

Occupational Health and Workplace Rights

Occupational health and workplace rights concerned with the safety, health, and welfare of people at work. In many common laws, employers or organizations have the duty to take reasonable care of the safety of their employees. The Ethiopian legal system has adopted employer's liability for employment safety since the promulgation of the 1960 Civil Code (Arts.2548-2559). Employers have the duty of ensuring the workplace safety both at prevention and at remedial stage. At the level of prevention, the employer's duty is bound to prevent preventable risks. For this purpose, it is required to provide safety equipments and train how and when to make use of them (Art.92 LP). The employee has also a corresponding duty at prevention

level to make use of the protective tools at appropriate time and place (Art.93 LP). Employer's liability is not only limited to the stage of prevention but also required to cover the remedial costs if the injury is associated with the employment. At remedial stage the employer is required to take compensatory measures after the damage has sustained. In other words, once industrial accident or occupational disease is sustained, the employer is expected to cover cost of medication including the cost for any necessary prosthetic or orthopedic appliances.

Occupational health and workplace safety issues are under the authority of Ministry of Labor and Social Affairs (MoLSA). By proclamation № 4/1995, MoLSA is given the powers and duties to determine standards and measures for the safety and health of workers and follow up their implementation; collect, compile and disseminate information on safety and health of workers. Labor proclamation № 377/2003 provided elaborate articles on the necessary measure that employer should take to safeguard the health and safety of the workers. In particular, article 12 stipulates the obligations of an employer "to take all the necessary occupational safety and health measures and to abide by the standards and directives to be given by the appropriate authorities in respect of these measures". Article 92 of this proclamation also details the obligations of the employer as:

- Comply with the occupational health and safety requirements provided for in this Proclamation;
- Take appropriate steps to ensure that workers are properly instructed and notified concerning the hazards of their respective occupations and the precautions necessary to avoid accident and injury to health; ensure that directives are given and also assign safety officer; establish an occupational, safety and health committee of which the committee's establishment, shall be determined by a directive issued by the Minister;
- Provide workers with personal protective equipment, clothing and materials instruct them of their use;
- Register employment accident and occupational diseases and notify the labor inspection of same;
- Arrange; according to the nature of the work, at his own expenses for the medical examination of newly recruited workers and for those workers engaged in hazardous work, as may be necessary;
- Ensure that the work place and premises do not cause danger to the health and safety of the workers;
- Take appropriate pre-executions to ensure that all the processes of work shall not be a source or cause of physical, chemical, biological, ergonomically and psychological hazards to the health and safety of the workers;
- Obey the directives issued by the appropriate authority in accordance with this Proclamation.

4.1.2. Ethiopian Environmental Proclamations and Guidelines

Environnemental Protection Organes Establishment Proclamation, No. 295/2002

The proclamation was made to re-establish the federal Environmental Protection Authority (EPA), to establish Sectorial Environmental Units and Regional Environmental Protection Agencies. The authority is recently restructured as Environment, Forest and Climate Change Commission. The former EPA was established to formulate policies, strategies, laws and standards, which foster social and economic development in a manner that enhance the welfare of humans and the safety of the environment, sustainable development projects and to spearhead in ensuring the effectiveness of the process during their implementation.

The former *Environmental Protection Authority* (EPA) and currently, the Environment, Forest and Climate Change Commission among others has the powers and duties to:

- Coordinate measures to ensure that the environmental objectives provided under the Constitution and the basic principles set out in the environmental Policy of Ethiopia are realized;

- Prepare, review and update, or as necessary, cause the preparation of environmental policies strategies and laws in consultation with the competent agencies, other concerned organs and the public at large and upon approval, monitor and enforce their implementation;
- Liaise with competent agencies in the field of environmental protection and rehabilitation and support them in capacity development;
- Establish a system for environmental impact assessment of public and private projects, as well as social and economic development policies, strategies, laws, and programs; and
- Provide advice and support to regions regarding the management and protection of the environment.

Sectoral Environmental Units (SEUs): Every competent agency (sectorial) is required by the Proclamation No. 295/2002 to establish or designate an environmental unit that shall be responsible for coordination and follow up so that the activities of the competent agency are in harmony with this Proclamation and with other environmental protection requirements. Accordingly, some sectorial agencies (e.g., Ministry of Agriculture) have now at least environmentalist to deal with environmental issues. Other ministries like Ministry of Mines, Ministry of Transport, Ministry of Housing and Construction, Ethiopian Road Authority, and others have environmental unit for the same purpose.

Regional States' Constitutions

Regional states have their own constitutions upholding the federal constitution in its entirety and constituting their regional particulars. All the regional state constitutions have addressed land and natural resources management and environmental protection. The regional states constitutions state that:

- The regional governments are entrusted to administer land and natural resources in the name of the people and deploy for the common benefit of the same;
- The regional governments and all citizens of the regions are responsible for the conservation of natural resources and the environment; and
- Concerned communities shall be given opportunity to express their opinions in the formulation and implementation of policies in relation to the environment.

Regional Environmental Protection Agencies (REPAs): The Proclamation No. 295/2002

The Proclamation decrees that each national regional state shall establish an independent regional environmental agency or designate an existing agency that shall, based on the Ethiopian Environmental Policy and Conservation Strategy and ensuring public participation in the decision-making process. REPAs are responsible for:

- Coordinating the formulation, implementation, review and revision of regional conservation strategies;
- Environmental monitoring, protection and regulation;
- Ensuring the implementation of federal environmental standards or, as may be appropriate, and issue and implement their own no less stringent standards; and
- Preparing reports on the respective state of the environment and sustainable development of their respective states and submits the same to the Authority.

The Environmental Impact Assessment Proclamation (Proc. № 299/2002)

As per the procedures in the proclamation, a proponent is required to undertake a timely environmental and impact assessment - EIA, 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 EIA reports be prepared by an expert that meet the requirements specified under any directive issued by the Authority (regional/federal).

This proclamation has made EIA to be a mandatory legal prerequisite for the implementation of major development projects, programs and plans. It is a basic legal framework to harmonize and integrate environmental, economic, cultural, and other social considerations into a decision-making process in a manner that promotes sustainable development. Article 3, sub-article 1 of this proclamation stipulates that no person shall commence implementation of a proposed project identified by directive as requiring EIA without first passing through environmental impact assessment process and obtaining authorization from the competent environmental agency. The proclamation obliges investment licensing institutions to get authorization from relevant environmental bodies prior to issuing investment permits or operation license to projects (Art. 3). It also requires such licensing institutions to suspend or cancel the permit or license they have issued for projects where the concerned environmental body suspends or cancels the authorization given for implementation of the project (Art. 12). The proclamation also allows for the imposition of a fine between fifty-thousand and one hundred thousand birr on any project owner who commences implementation of a project without obtaining authorization from environmental agencies or who makes false presentation in the environmental impact assessment study report (Art. 18).

Jurisdictions in the Proclamation: 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 Pollution Control Proclamation (Proc. № 300/2002)

It is promulgated with a view to eliminate or, when not possible to mitigate pollution as an undesirable consequence of social and economic development activities. This proclamation is one of the basic legal documents, which need to be observed as corresponding to effective ESIA administration.

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.

Solide Waste Management Proclamation, No. 513/2007

This 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

The Definition of Powers and Duties of the Executive Organs of the FDRE, Proclamation № 916/2015

This proclamation mandated the Ministry of Environment, Forest, and Climate Change (MEFCC) to ‘establish a system and follow up implementation for undertaking environmental impact assessment or strategic environmental assessment on social and economic development policies, strategies, laws, programs and project set by the government or Private’ (Article 30, sub article 1/b). It also requires MEFCC to ‘establish a system for evaluating and decision making, in accordance with the Environmental Impact

Assessment Proclamation, the impacts of implementation of investment programs and projects on environment prior to approvals of their implementation by the concerned sectorial licensing organ or the concerned regional organ' (Article 30, sub-article 1/e).

Ethiopian Water Resources Management Proclamation, No. 197/2000

The proclamation is decreed to ensure that the water resources of the country are protected and utilized for the highest social and economic benefits of 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. It proclaims that all water resources of the country are the common property of the Ethiopian people and the state. It has provisions on general principles of water use and management, inventory of water resources, professional engagement in water resource management and supply. Among other articles, the proclamation clearly indicates the requirements on water bank management and prevention of harmful effects on water resources in the articles 24 and 25 of the proclamation.

The supervising body (the Ministry Water, Irrigation and Energy), in collaboration and in consultation with the appropriate public body may:

- Delimit the boundaries of the banks of certain water bodies;
- Prohibit clearing and cutting trees or vegetation and construction of residential houses within the delimited banks of water bodies;
- The appropriate public bodies shall, before allowing or causing the founding of towns or villages, request the supervising body for technical advice in order to prevent or avoid damages, adverse impacts or accidents which may occur as a result of floods and other factors related to water.

Special Decree No, 20/1990 Council of State Special Decree to Provide for the Registration and Control of Pesticide

In the preamble it is stated that the purpose of the proclamation is to make it possible to minimize, to the extent reliable, the adverse effects that utilization of pesticides might cause to human beings, animals, plants and the environment. According to the this proclamation, any substance, mixtures thereof or a living organism intended for use in preventing, destroying or controlling any pest; the following in particular is termed as "pesticide":

- Unwanted species of plants or animals causing harm during, or otherwise interfering with, the production, processing, storage, transport or marketing of food commodities, agricultural produces, wood and wood products or animal feedstuffs; insects or other pests in or on the bodies of animals and causing harm to their health.
- Vectors of human and animal disease: it also includes substances or mixtures thereof intended for use as a plant-growth regulator, defoliant, desiccant or agent for thinning fruit or preventing the premature fall of fruit and substances applied to crops, either before or after harvest, to protect the commodity from deterioration during storage or transport.

The proclamation prohibits the following:

- The manufacture, import, sells or use of pesticide not registered in accordance with this special decree,
- The import, storage, transport or offer for sale of pesticides where not packed or labeled as provided in this special decree and directives issued hereunder.
- Authorization of registration is granted if the pesticide is used or handled according to the instructions contained in its proposed label, would constitute a risk to human beings, animals and the environment of such a minimal extent or degree as to be outweighed by the necessity or advantages of using it.

Pesticide Registration and Control Proclamation: Proclamation No. 674/2010

To minimize the adverse effect of pesticide, use on human beings, animals, plant and the environment, the country has enacted Pesticide Registration and Control Proclamation (No. 674/2010). The proclamation aims to regulate the manufacture, formulation, import, export, transport, storage, distribution, sale, use and disposal of pesticide. Before this proclamation was enacted, there was Pesticide Registration and Control decree. This Proclamation:

- Covers agricultural, household, public health, and industrial pesticides;
- Provides registration and control responsibilities to the Ministry of Agriculture;
- 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.

Guidelines are produced and distributed to the grassroots level to help them monitor pesticide distribution, application, handling and storage. But there are enough data to compliment that the guidelines have not been reaching all the smallholder farmers who have been using pesticides. Other policies, proclamation and guidelines that address the safe use and management of pesticide and chemicals include the Agricultural Policy, the Environmental Pollution Control proclamation (No 300/2002), labor Proclamation (42/93), and Public Health Proclamation (200/2000) among others.

Environmental and Social impact Assessment Guidelines and Directives

The former EPA 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. Later these guidelines are revised and compiled into one comprehensive guideline, “*Environmental and Social Impact Assessments Guideline September, 2017*”.

This guideline outlines the screening, review and approval process for development projects in Ethiopia and defines the criteria for undertaking an ESIA. According to this ESIA procedural guideline, projects are categorized into three schedules:

Schedule 1: Projects which may have adverse and significant environmental impacts thus requiring a full Environmental Impact Assessment;

Schedule 2: Projects whose type, scale or other relevant characteristics have potential to cause some significant environmental impacts but are not likely to warrant a full ESIA study

Schedule 3: Projects which would have no significant environmental and social impact and do not require an ESIA.

However, projects situated in an environmentally sensitive areas such as land prone to erosion; desertification; areas of historic or archaeological interest; important landscape; religiously important area, etc. will fall under Schedule I irrespective of the nature of the project.

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 and social management plan (e.g., identified impacts, mitigation measures, monitoring, capacity building, etc) and structured formats for mitigation measures, monitoring and institutional arrangements for the implementation of ESMPs.

Environmental and Social Impact Assessments Guideline September 2017

It is a revised version of the Ethiopian ESIA Guidelines with the aim to integrate social issues (gender, health, work place rights etc) in to the environmental impact assessment system of the country.

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 and Social Impact Assessment. The regions are entitled to issue similar directive to their own specific cases based on these directives. Extensive list of project types requiring ESIA are provided in this directive.

4.2. Relevant and Applicable International Conventions Ratified by Ethiopia

The Ethiopian government is party to a number of regional and international conventions and protocols on environment. Article 9(4) of the constitution of the Federal Democratic Republic of Ethiopia provides the legitimacy that once an international agreement is ratified through the accepted or established procedure. It automatically becomes an integral part of the law of the land. 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. Consequently, the following, among others are international conventions and protocols that are highly relevant to the implementation of the EELRP sub projects, and hence such program implementation need to be in compliance with those conventions. Some of these conventions include the following:

Convention on Biological Diversity

This convention has three goals, and Ethiopia ratified to meet the goals through proclamation No.98/94 on May 31, 1994:

- Conservation of biodiversity;
- Sustainable use of the components of biodiversity; and
- Fair and equitable sharing of the benefits arising from the use of genetic resources.

United Nations Framework Convention on Climate Change

This convention takes into account the fact that climate change has trans-boundary impacts. The basic objective of the convention is to provide for agreed limits on the release of greenhouse gases into the atmosphere so as to reduce the impacts of climate change. Ethiopia ratified this convention through proclamation No. 97/1994 on May 2/1994. The proposed project needs to be implemented in a manner it promotes adaptation to and mitigation of climate change.

The United Nations Conventions to Combat Desertification

The objective of the convention is to combat desertification and mitigate the effects of droughts in countries experiencing serious drought and desertification, particularly in Africa. Ethiopia has ratified the convention through its proclamation No. 80/1997. Respecting the convention is so important as the proposed project is implemented in historically prone to drought and flooding.

The Bamako convention

The Bamako convention on the ban of the import into Africa and the on the control of trans-boundary movements and management of hazardous wastes within Africa, adopted in Bamako, Mali on 30 January, 1991. The **objective of the convention** is to protect the health of populations and the environment of African countries concerning the movement, dumping and handling of hazardous waste coming from other countries.

The Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal is the most comprehensive global environmental agreement on hazardous and other wastes. It aims to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.

The Basel Convention regulates the transboundary movements of hazardous and other wastes and obliges its Parties to ensure that such wastes are managed and disposed of in an environmentally sound manner.

The Rotterdam Convention

This Convention relates to prior informed consent in the context of international trade in specific hazardous industrial chemicals and pesticides. Ethiopia has ratified this Convention by Proclamation No. 278/2002, on July 2, 2002.

The Stockholm Convention on Persistent Organic Pollutants

The Convention aims to ban the use of Persistent Organic Pollutants (POPs). Ethiopia has ratified this Convention by Proc. No. 279/2002, on July 2, 2002. Therefore, any investment is required to respect the objective of the Convention as per the system of the country.

The *Rotterdam convention on Prior Informed Consent (PIC)*, *Basel convention*, *Stockholm convention on (POPs)*, and *Bamako Convention (1991)*, have importance in pesticides managements. Consideration of these conventions is therefore essential when managing pests and pesticide products.

The International Covenant on Economic, Social and Cultural Rights

This agreement together with the international agreement on Civil and Political Rights and the Universal Declaration on Human Rights make up the International Bill of Rights. It addresses such fundamental rights as the right to fair conditions of employment, the right to social security, the right to food, clothing and housing, and the right to culture. The Convention is adopted in 1966 and come in to force in 1976, ratified by Ethiopia in 1993.

The United Nations Convention on the Elimination of all forms of Discrimination Against Women (UNCEDAW)

The Convention establishes that discrimination against and inequality faced by women violates human rights principles. It calls on States' Parties to actively remedy discrimination against women in several key

areas such as marriage, employment, education and religion. CEDAW was adopted by the General Assembly in 1979 and ratified by Ethiopia in 1981.

The Universal Declaration of Human Rights

This declaration was enacted in 1948 and boldly states the need for the protection of human rights. Civil, political, economic, social and cultural rights are the core constituents of the declaration. Ethiopia has accepted the declaration to duly respect the very natural and democratic rights stipulated in this declaration.

The International Labor Organization (ILO) Conventions

The International Labour Organization (ILO) has promulgated several international conventions and standards. Convention No. 111/1958 that deals with the prevention of discrimination in respect of employment and occupation, Convention No. 100/1951 that calls for all eligible workers are to be paid equal amount for equal type of work, Convention 87/1948 that gives the freedom of association and protection of the right to organize by workers and employers, Convention 98/1949 that gives the right to the workers to organize and collective bargaining, Convention 29/1930 that strives to prevent forced or compulsory labour and Convention 105/1957 that calls for the abolition of forced labour are few of them which Ethiopia is party to them.

Because Ethiopia is part to these and other ILO's Convention, employers in the country are not allowed to discriminate their workers on any basis (such as race, color, gender, age, religion, social class, political tendencies, nationality, union membership, civil status or any other motives). Employers must offer equal pay, training, promotion and benefit opportunities to all workers for the same type of work. No forced labour is allowed for any reason (as a political coercion or education or as a punishment for holding or expressing political views or views ideologically opposed to the established political, social or economic system or as a method of mobilizing and using labour for purposes of economic development or as a means of labour discipline or as a punishment for having participated in strikes or as a means of racial, social, national or religious discrimination). ILO Conventions urge that employers must protect the occupation health and safety of the workers as well as create safe working environment with the primary objectives of preventing, if possible, or reducing work-related accidents, injuries and diseases.

4.3. The World Bank Environmental and Social framework requirement

The ESMF complies with the World Bank Environmental and Social Standards (ESSs) under the Environmental and Social Framework (ESF) and other environmental and social management guidelines that have been stipulated as a requirement. The World Bank Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. The Environmental and Social Standards (ESSs), together with their Annexes, have set out the mandatory requirements that apply to the Borrower and projects. The ESSs set out the requirements of the Bank relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the borrower. There are ten ESSs which establish the standards that the Borrower and the project will meet through the project life cycle. Thus, in order to meet the requirements of the WB, the Environmental and Social Risks and impacts of EELRP activities and the ESSs which are applicable to the EELRP were analyzed.

4.3.1. ESSs applicable to the EELRP

ESS1. Assessment and Management of Environmental and Social Risks and Impacts

This Standard requests to assess and manage the environmental and social risks and impacts of the proposed project so as to ensure sustainable development. If the project has meet this standard, the project will have

positive impacts through combating the damage created by the widespread desert locust in Ethiopia and the Horn of Africa region. The project will protect fragile livelihoods from locust infestation and subsequently enhance the food security of communities through livelihood support in the project area. The project activities on livelihoods support component provide opportunities to reclaim human capital and asset losses due to the desert locust. The support will enable vulnerable households gain access to livelihoods support, feed/fodder distribution and essential agricultural inputs for building livelihoods, restocking livestock, rehabilitating rangelands, veterinary services including vaccination for prevention of disease outbreaks. However, the proposed Project could also cause high environment, health and safety risks due to the highly toxic nature of the pesticides to be used for spraying for the control of the locust. The spraying operation due to inadequate adherence to occupational health and safety standards can lead to illness and death among field workers. But even if there is no direct involvement in control operations, the local population can be exposed to insecticides, as well.

Hence as per the ESS1 requirement, the MoA will undertake an environmental and social assessment to assess the environmental and social risks and impacts of a project throughout the project life cycle. The term 'environmental and social assessment' is a generic term that describes the process of analysis and planning used by the PIU to ensure that the environmental and social impacts and risks of a project are identified, avoided, minimized, reduced or mitigated. The environmental and social assessment is the primary means of ensuring projects are environmentally and socially sound and sustainable, and will be used to inform decision making. The environmental and social assessment is a flexible process, that can use different tools and methods depending on the details of the project and the circumstances of the PIUs. A definition of Some of the tools is given below.

Environmental and Social impact assessment (ESIA): is an instrument used to identify and assess the potential environmental and social impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures.

Environmental and Social Management Plan (ESMP): is an instrument that details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures. An Environmental and Social Management Plan (ESMP), also referred to as an impact management plan, is usually prepared independently or as part of ESIA report. Depending upon particular requirements, the plan may be included in.

When the potential environmental impacts of projects on humans and sensitive areas (wetlands, forests, natural habitats, etc.) are less adverse, site specific, few if any are irreversible, ESIA is not always required, some form of environmental analysis is necessary and an Environmental and Social Management Plan (ESMP) needs to be prepared with recommended measures to prevent, minimize, mitigate or compensate for adverse impacts.

The focus of this section is to suggest appropriate measures in order to avoid and/or minimize negative and enhance positive impacts of the proposed actions.

The Format for preparing an ESMP is provided in Annex 16. On the other hand, if the planned sub project has the potential to cause significant adverse impacts are considered irreversible or unprecedented, and which extend beyond the physical footprint of the activity, comprehensive environmental and social impact assessment or full ESIA report, covering the full range of environment and/or social impacts, and environmental and social impact management plan is required.

If the subproject or activity of the project has required undertaking partial or full ESIA, the ESIA report has to be produced in accordance with the Format/ contents of an ESIA report provided in **Annex 5** of this ESMF.

ESS2 Labor and Working Conditions

ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. The MOA shall promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. The project implementation will involve direct and indirect labor coordinated by the Ministry of Agriculture (MOA), Plant Protection Directorate. The direct labor includes the MOA, Plant Protection Directorate Staff, recruited consultants by the MOA for the project, Bureau of Agriculture, Plant Protection Department Staff, Bureau of Pastoral Development Staff working for the project, and Woreda level Office of Agriculture/pastoral development staff. There will be contracted staff through consultancies for the implementation of the project.

Indirect Labor include, contracted labor for the spraying of pesticides, vehicle mounted sprayer drivers, technicians, aircraft operators, flag men/women and scouts. Community labor could be mobilized as part of the pest control activity through operating handheld pest management sprayers, volunteer workers and as part of the livelihood support measures through cash for work.

The MOA will follow both the ESS2 and the FAO guideline: Safety and environment procedure and training manual and other international good practice on observing occupational health and safety of staff involved in the pesticide transport, management, use, disposal of residue and spraying.

The project will ensure the application of **Occupational Health and Safety measures** (e.g. included in the site-specific ESMPs, contracts and monitoring systems) as outlined in the ESMF noted under ESS1 as well as FAO guidelines, including Guidelines for personal protection when handling and applying pesticide (2020).

The recruitment of child labor is forbidden in accordance with ESS2 and the Ethiopian “National Social Protection Policy of Ethiopia”, due to the hazardous work situation involving use and management of pesticides for any person under the age of 18. The project may outsource some of the activities to contractors, including rental of aircrafts, vehicle mounted sprayers for spraying. However, the project is not expected to deploy large-scale labor influx during the peak season of locust infestation spraying. In line with ESS2 as well as the Ethiopian law, the use of forced labor or conscripted labor in the project, both for pesticide spraying and the cash for work activities is not allowed. The MOA will ensure consistent application and adherence to the requirements related to the applicable Environmental and Social Standards.

The project will also ensure a basic, responsive grievance mechanism to allow workers to quickly inform management of labor issues, such as a lack of PPE and unreasonable overtime via the Ministry of Agriculture.

ESS 3: Resource Efficiency and Pollution Prevention and Management

ESS3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle consistent with Good International Industry Practice (GIIP).

To fulfill the requirements of this ESS the PIU will establish appropriate Environmental Monitoring procedure for the implementation of environmental and social risk management measures; Such as (i) designing an appropriate environmental and social protection plan in the context of regular project monitoring, (ii) on insecticide application quality, control efficacy and the reporting of incidents; in more detail.

In locust control operations large quantities of insecticides are likely to be stored and used, with associated risks to man and the environment. Application of insecticide should be made in accordance with good pest control practice to ensure efficacy and safe use. Some insecticides are more hazardous than others and require very careful handling. It is important, therefore, to know which insecticides are most dangerous so that adequate safety precautions can be taken. The project will require Material Safety Data Sheets to be available for review as set forth by relevant international agencies and outlined in the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The list of the relevant international conventions related to the project, in order to address their requirements, as relevant, in any proposed mitigation measures is provided in section 2 of this ESMF.

The MoA will ensure that all pesticides used will be manufactured, formulated, packaged, labeled, handled, stored, applied and disposed of according to the relevant international standards and codes of conduct, as well as the General and sector-specific EHSGs. Care is therefore required at all stages in their transport, storage and application. Appropriate site selection, design, maintenance and day-to-day organization of stores and transport operations must be planned to keep hazards to a minimum.

The need to dispose of unwanted or surplus insecticides should be kept to an absolute minimum by careful store management and stock rotation. For large quantities, advice should be sought from the supplier. Unless empty pesticide containers are managed correctly, they are hazardous to both mankind and the environment. Therefore, used insecticides' drums and containers will need to be disposed in special landfills. There is a danger that empty containers could be reused for storing food and water, which could result in pesticide poisonings. Containers abandoned in the environment can lead to pesticide pollution in soil and groundwater.

This ESMF and site-specific instruments (ESMPs) will include guidance related to (i) adequate design of pesticide storage, handling, and management facilities; (ii) management of stocks in an effective, efficient, and transparent way, (iii) improvement of the capacity of health centers in the treatment of pesticide poisoning incidents; (iv) dispose of unwanted or surplus insecticides; in line with WHO and FAO Guidelines for Safety and environmental precautions: Guidelines on Developing a Reporting System for Health and Environmental Incidents Resulting from Exposure to Pesticides, 2009 ; Prevention of Accumulation and Disposal of Obsolete Stocks; 2009, 2011 and The International Code of Conduct on Pesticide Management.

ESS4 Community Health and Safety

ESS4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.

ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of MOA to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.

This ESS addresses potential risks and impacts on communities that may be affected by project activities. Occupational health and safety (OHS) requirements for project workers are set out in ESS2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in ESS3.

In line with safety provisions in ESS2, it is equally important to ensure the safety of communities from the potential impacts and risks of pesticide use and management intended to mitigate the locust infestation.

The use of pesticide for managing locust infestation may require regular community interaction and awareness creation about the benefits, potential side effects of pesticide use on humans, agricultural crops, livestock and livestock feed, on water wells for humans and livestock, and the environment. The management and disposal of residual pesticide including the overuse and misuse may have potential

impacts and associated risks on community health and safety. The unintended and out of control effects of pesticide spraying (beyond the defined buffer zone, based on the spraying strategy) should be properly communicated with the different communities in appropriate language, form and media:

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

This ESS recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. Biodiversity often underpins ecosystem services valued by humans. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem services.

Relevant aspects of this standard are considered under ESS1 above. To ensure to identify all areas that are ecologically and agronomically important or particularly sensitive areas like (National parks; nature reserves; internationally protected areas; important (inland) fisheries areas; forests; important fruit-growing areas; beekeeping areas; areas with export crop or livestock production and areas with organic farming) to insecticides and identify appropriate locust control techniques.

The spraying of insecticides on a wide area within the context of locust control and the manipulation of related chemicals is the main source of negative impact on biodiversity. The project should identify all areas that are ecologically and agronomically important or particularly sensitive to insecticides.

For each sensitive area, locust management options should be evaluated based on the type of organisms at risk and the likely locust targets that may appear in the area. These may include: National parks; nature reserves; internationally protected areas; important (inland) fisheries areas; forests; wetlands; important fruit-growing areas; beekeeping areas; areas with important biological pest control programs; areas with export crop or livestock production and areas with organic farming. Subsequently, appropriate locust control techniques have to be identified for each area. These include the decision to allow chemical control or not, the choice of acceptable insecticides, periods when treatments are or are not allowed, appropriate control methods, etc. In certain areas chemical locust control may not be allowed by law (as in the case of national parks).

In order to ensure the above, it is important that all relevant national expertise is involved in this assessment, such as the national agencies dealing with forest, environment, biological pest control, (inland) fisheries, bee-keeping, national parks, etc. It is often most effective to try to map out the various sensitive areas and make overlays with previous (or newly expected) locust infestations. The procedures outlined in the ESMF in line with FAO Guidelines for Safety (and environmental precautions, 2003 and waste management plan will describe how these impacts will be avoided, minimized or mitigated.

- with Good International Industry Practice (FAO guideline).
- Measures in place to prevent or minimize the unintended and out of control effects of pesticide use.
- Emergency and response measures including for poisoning of humans.

ESS7. Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (SSAHUTLC).

The project will be implemented in Afar, Somali, and parts of Oromia and SNNP where the people meet the criteria of ESS7. The PIU will ensure respect to human rights, dignity, aspirations, identity, culture and livelihoods of SSAHUTLC and avoid adverse impacts on them or, when avoidance is not possible, minimize, mitigate or compensate for such impacts. In addition, a separate **Social Assessment** and an **Integrated Pest Management** documents are prepared in parallel with ESMF.

The food insecurity and loss of livelihood disproportionately impact vulnerable group of the community. Though the exact number is unknown, vulnerable group of the community which includes women, women head household, elders, children, and disabled people significantly and disproportionately affected by the impact of desert locust invasion by increased nutrition and food insecurity.

This ESS contributes to poverty reduction and sustainable development by ensuring that projects supported by the Bank enhance opportunities for **Underserved and Vulnerable groups**, to participate in, and benefit from, the development process in ways that do not threaten their well-being.

This will be ensured via the Project's communication and outreach strategy as outlined under ESS10: the project will ensure that such communities are appropriately informed and can share in the benefits of the project in an inclusive and culturally appropriate manner on the locust infestation control, management and livelihoods components.

The proposed project does not involve aspects which would require FPIC, unless the project intends to use community based biopesticides. Where the community based biopesticides are part of SSAHTLC cultural heritage and their use in the project is considered a commercial purpose. However, if SSAHUTLC do use community based biopesticides and they are considered material to their identity, the project would need FPIC not to use them in their areas in order to use the projects different/commercial/chemical pesticides instead. If the project intends to develop and use biopesticides, a due process of consultation should be held including obtaining consent, define benefit sharing.

The MOA will ensure that these communities are appropriately informed and can share from the project benefits in an inclusive and culturally appropriate manner (i.e. prevention and treatment) with provisions included in the SEP.

ESS10. Stakeholder Engagement and Information Disclosure

This ESS recognizes the importance of open and transparent engagement between the PIU in the MOA and project stakeholders as an essential element of good international and national practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. Stakeholders will be kept informed as the project develops, including reporting on project environmental and social performance and implementation of the stakeholder engagement plan and grievance mechanism. This will be important for the wider public, but specifically critical for the directly impacted community members.

The project will establish a structured approach to engagement with stakeholders that is based upon meaningful consultation and disclosure of appropriate information, considering the specific challenges associated with the locust emergency response. The project community consultation should focus on awareness raising regarding timing of the spraying, potential impact of the spraying on human health, livestock and fodder, water wells for humans and livestock, agricultural crops, spraying mechanism (hand held, vehicle and aircraft), roles and responsibilities including that of the communities. The consultation should also inform communities about the availability of compensation payments for out of control potential impacts on livestock, humans and agricultural produce. The consultation with the communities will inform about the project components and activities, including targeting for short and longer term livelihoods support. People affected by project activities should be provided with accessible and inclusive means to raise concerns and grievances.

The Ethiopia Locust Response Project will include adequate resource for the implementation of the Stakeholder Engagement Plan including environmental monitoring program, procurement of protective equipment, livelihoods support assessment (including targeting criteria), community consultation and development of training of experts. These activities will inform an update to the project approach of SEP. These outreach mechanisms will be defined as part of the SEP (currently updated to define the operational

steps) based on the local context, language, preferred media, cultural values. The financing will be further used for producing communication materials, including local radio content, and traditional information sharing channels for effectively sharing information with communities during operation of spraying and documentation. These will cover 70,000 community and village leaders' sensitization and training of experts of all infested areas to approach country-wide awareness creation with a target to reach 72,126, as a key activity for the SEP. The project will ensure the establishment of a Grievance Redress Mechanism.

4.3.2. The World Bank Groups Environment, Health and Safety Guidelines (EHSs)

In light of this, it has to be noted that the World Bank Groups Environment, Health and Safety Guidelines (EHSs) will be applicable as part of implementation of the proposed EDLER Project. The following guidelines will apply, (i) Occupational Health and Safety:

[https://www.ifc.org/wps/wcm/connect/1d19c1ab-3ef8-42d4-bd6b-cb79648af3fe/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES&CVID=ls62x8l;](https://www.ifc.org/wps/wcm/connect/1d19c1ab-3ef8-42d4-bd6b-cb79648af3fe/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES&CVID=ls62x8l;cb79648af3fe/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES&CVID=ls62x8l;)

(ii) Perennial Crop Production related to Pest Management,

[https://www.ifc.org/wps/wcm/connect/2db115fe-4842-4a32-86ed-c9d659a0ea38/English_2016_Perennial+Crop+Production_EHS.pdf?MOD=AJPERES&CVID=lf6bDhw;](https://www.ifc.org/wps/wcm/connect/2db115fe-4842-4a32-86ed-c9d659a0ea38/English_2016_Perennial+Crop+Production_EHS.pdf?MOD=AJPERES&CVID=lf6bDhw;c9d659a0ea38/English_2016_Perennial+Crop+Production_EHS.pdf?MOD=AJPERES&CVID=lf6bDhw;)

(iii) Community Health and Safety related to Transport of Hazardous Materials

[https://www.ifc.org/wps/wcm/connect/eeb82b4a-e9a8-4ad1-9472-f1c766eb67c8/3%2BCommunity%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES&CVID=ls62Gai;](https://www.ifc.org/wps/wcm/connect/eeb82b4a-e9a8-4ad1-9472-f1c766eb67c8/3%2BCommunity%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES&CVID=ls62Gai;eeb82b4a-e9a8-4ad1-9472-f1c766eb67c8/3%2BCommunity%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES&CVID=ls62Gai;)

4.4. Administrative Structure for Environmental and Social Management

4.4.1. Environment, Forest and Climate Change Commission (EFCCC)

This Commission has overall responsibility for setting environmental policies, regulations, guidelines and standards for administration of ESIA requirements. Regional Bureaus of Environment have been established in all of the regions and the City administration.

4.4.2. Ministry of Agriculture

The Ministry of Agriculture is responsible for a broad array of agricultural production and research, food security, poverty reduction, natural resource management and rural development programs and activities. The regional Bureaus of Agriculture are directly involved in delivery of programs with woredas, in keeping with the decentralization strategy of the country.

4.4.3. Ministry of Water, Irrigation and Energy

This ministry is responsible for overall inventory, planning and management of surface and ground water resources in the country. This includes aspects of watershed management, water supply and water quality management that affect rural development programs. Regional Water Bureaus are directly involved in assisting woredas and other agencies in water resource development projects.

4.4.4. Woreda Offices

The woredas are a key focus of the government's commitment to decentralized delivery of services. The various departments at the woreda level have a direct responsibility for finance, land use, natural resources, infrastructure, and development at the local level. The agriculture departments have subject matter specialists and others who advise development agents working at the village level. The Desert Locust Control Project implementation will depend upon appropriate inputs and management controls related to soil and water conservation, small scale irrigation development, rainwater harvesting, road development and water supply, sanitation and waste management associated with rehabilitated schools and clinics.

4.4.5. Kebele Administration

The kebeles (areas with an average population of about 5,000) are in practice the primary contact level for most Ethiopian citizens. Kebele administrations consist of an elected Kebele council (in principle 100

members), a kebele executive committee of 5-7 citizens, a social court, and the development and security staff posted in the kebele.

The kebele council and Executive committee's main responsibilities are:

- preparing an annual kebele development plan;
- ensuring the collection of land and agricultural income tax;
- organizing local labor and in-kind contributions to development activities;
- Resolving conflicts within the community through the social courts.

Kebele executive committees are responsible to their woreda council. Unlike executive committee members at the region and zone, elected members receive no stipend. The only official Kebele officer is the council chairman, who receives a small monthly allowance. The kebeles provide a link between the state and households and are responsible for enforcing the directives from the government ministries. In remote areas, the kebeles may be the only association; governmental services are conveyed through them.

4.5. Institutional Arrangements

Under the overall supervision of the MoA, agencies, every level of Government will be accountable for the oversight and coordination of the program, with implementation of program activities being undertaken by woredas and kebeles, line ministry/agencies and other partners. The roles and responsibilities envisaged for the key institutions at each level are set out in summary form in Table 2. The preparation of the proposed projects identified as priorities by the community is carried out at kebele level, usually by the Development Agent (DA). Technical guidance is provided by the different kinds of Guidelines provided in the Annex Part of this ESMF. Where technical inputs are not available at the kebele these are to be provided by the woreda line, or sector, offices concerned.

Table 2. Institutional arrangements for pest and pesticide management in Ethiopia

no	Institution	Role	Remarks
1	MoA Agriculture sector state Minister Plant Protection Directorate PSNP IV	<ul style="list-style-type: none"> • Leading the project • Over see • Chair steering • Coordinator • Survey, monitoring , early warning and locust management activities coordination 	
2	Crop production Directorate Livestock Development	<ul style="list-style-type: none"> • Organize grain pasture seed supply to the areas affected by locust 	The structure up to lower level will evolve
3	Procurement Directorate	<ul style="list-style-type: none"> • Coordinate procurement activities 	
4	Region Bureaus of Agriculture and/or Pasture	<ul style="list-style-type: none"> • Involve in the coordination of Desert Locust management and impact mitigation activities 	The structure up to lower level will evolve
5	World Bank	<ul style="list-style-type: none"> • Provide any technical guidance as required, and plays an over sighting role on the overall ESF implementation, 	
6	MoF	<ul style="list-style-type: none"> • Co-chair for steering committee • Facilitate project finance 	

no	Institution	Role	Remarks
7	MoH	<ul style="list-style-type: none"> Collaborate in Health impact reduction activities 	The structure up to lower level will evolve
8	Environment and Forest protection commission	<ul style="list-style-type: none"> Regulate Environmental and social impact assessment and mitigation 	The structure up to lower level will evolve
9	Ministry of Water, Irrigation and Energy	<ul style="list-style-type: none"> Ensure water quality standard 	The structure up to lower level will evolve
10	MoLSA	<ul style="list-style-type: none"> Regulate OHS issues 	The structure up to lower level will evolve
11	FAO	<ul style="list-style-type: none"> Collaborator in technical aspects 	

5. Environmental and Social Risk Management of EELRP

Since **Component 2: Livelihood protection and restoration's** detailed activities have not been adequately addressed so far, this ESMF has mainly addressed and focused on impacts emanated from activities of Component 1: Locust monitoring and control and risks related with **Component 4: Project Management**. Once the Livelihood restoration activities have been fully addressed, this ESMF will be updated to address Component 2 issues.

5.1. General Information on Project's Pesticide Spraying Activities Impacts and Precautions

Generally, farmers use pesticide chemicals (herbicide, insecticide, fungicide and others) to control pests and 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. Those at greatest risk are those who experience the greatest exposures typically small-holder farmers, farm workers, pesticide spray operation workers and their families. Larger holders are more likely to have received training on pesticide risk avoidance; however, laborers hired by them may not. The unsafe use of pesticide product also poses serious negative impact on the environment (soil, water, plant, wildlife, microorganisms, and others).

The spraying operation due to inadequate adherence to occupational health and safety standards can lead to illness and death among field workers. But even if there is no direct involvement in control operations, the local population can be exposed to insecticides, as well. The same way, the insecticides that are used at present for Locust control may have broad-spectrum activity and are thus not entirely specific to locusts. As a result, they may adversely affect other organisms in the environment. Effluents resulting from the rinsing of pesticide drums and aircraft tanks may also pollute the environment and ground water through leakages.

Furthermore, insecticides can have a broad impact on many aspects of life and ecosystems. Effects on ambient conditions such as the incremental contribution of pollutant emissions in an air shed increases in pollutant concentrations in a water body or in the soil. The loss of biodiversity (death of plant, wildlife, and microorganisms) are also possible cumulative risks and impacts of insecticide use. Therefore, the insecticide must have negligible adverse human health effects:

- The insecticide must be shown to be effective against the target species.
- The insecticide must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural environment.
- Their use must consider the need to prevent the development of resistance in pests.

Besides, pesticides to be financed should be manufactured, packaged, labeled, handled, stored, disposed of, and applied according to standards acceptable to the World Bank. This Project will not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II. Thus, an appropriate pesticide management plan is prepared in parallel with this ESMF to address the potential risks.

Therefore, to implement the EELRP, an appropriate approach should be developed to protect human health and the environment from risks associated with pesticide use. This includes protection of pesticide users, consumers, the public, livestock, wildlife, water bodies, etc. For this project, the criteria, as per the list of FAO Desert Locust Guidelines should be considered in the selection and use of insecticides.

This ESMF emphasizes subproject planning should strive for plans and designs that avoid or minimize creating adverse environmental and social impacts that have to be explicitly managed. Initially, the potential Positive and negative impacts of the project are identified, and some of the positive impacts of the EELRP are listed below:

- Protect fragile livelihoods from locust infestation and subsequently enhance the food security of communities through livelihood support in the project area.
- Provides opportunities to reclaim human capital and asset losses due to the dessert locust.
- Support vulnerable households to gain access to livelihoods support, feed/fodder distribution and essential agricultural inputs for building livelihoods, restocking livestock, rehabilitating rangelands, veterinary services including vaccination for prevention of disease outbreaks.

For this project, the following criteria, as per the list of FAO Desert Locust Guidelines stated below, will be considered in the selection and use of insecticides:

- The insecticide must have negligible adverse human health effects
- The insecticide must be shown to be effective against the target species.
- The insecticide must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural environment.
- Their use must consider the need to prevent the development of resistance in pests.

Only registered insecticides should be used for Desert Locust control (where applicable). Use the decision scheme provided in Annex 8, Figure 4, and 5 below to check whether actions are needed for the registration of products in your campaign.

Besides, pesticides to be financed should be manufactured, packaged, labeled, handled, stored, disposed of, and applied according to standards acceptable to the Bank. This Project will not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly. The PIU should prepare an appropriate pesticide management plan to address the potential risks. The list of potential Impacts of EELRP and the associated potential Mitigation Measures of EELRP are provided in **Table 3**.

In addition, the MOA, Plant Protection Directorate, the project implementing entity will use, FAO Desert Locust Guidelines on safety and environmental precautions:

- Guidelines on Good Practice for Ground Application of Pesticides, 2001;

- Guidelines on Good Practice for Aerial Application of Pesticides, 2001;
- Guidelines for personal protection when handling and applying pesticides, 2020;
- Guidelines on Organization and Operation of Training Schemes and Certification Procedures for Operators of Pesticide Application Equipment, 2001;
- Guidelines on Developing a Reporting System for Health and Environmental Incidents Resulting from Exposure to Pesticides, 2009;
- Prevention of Accumulation and Disposal of Obsolete Stocks; 2009, 2011 and
- The International Code of Conduct on Pesticide Management of the World Health Organization Food and Agriculture Organization of the United Nations Rome, 2014

These guidelines include among others provision to address the reduction of environmental and human health risks from insecticide use during locust control are discussed. Practical recommendations are given on how to address risk reduction during the campaign preparation phase, how to implement it during the control operations, and how to evaluate it in post-campaign follow-up, and environmental and human health monitoring during locust control operations.

The Environmental and Social Management Framework (ESMF) developed for the EELRP to incorporate the issues related to the increased use of pesticides and associated potential risks, impacts and proposed measures to avoid, minimize or mitigate these risks. The ESMF (including an ESMP template and a IPMP template) will adequately cover environmental and social potential impact control measures and procedures, for the safe handling, storage, and processing of locust management pesticide and materials including the techniques for preventing, minimizing, and controlling environmental and social impacts during the operation of project. It will incorporate measures to reflect climate variability in the design of sub-projects, to add elements of runoff and leaching control during the rainy seasons.

Negative Environmental Impacts and Risks of EELRP

It is obvious that potential environmental and health risk are likely to occur at the various handling stages of pesticides for the management of Desert Locust outbreaks. This is due to the fact that potential risks on the human health, animal health and the environment associated with various handling stages including during shipment /importation, transportation, storage, distribution, use of pesticides and disposal of the empty container.

Measures used to mitigate the environmental impacts of EELRP

The use of pesticides for management of desert locust infestation project employs essential safeguard measures. Among the measures adhering to pesticides only in compliance with the World Bank ESS, and within the list of FAO guideline and registered by the local government, i.e, MoA, Plant Health Regulatory General Directorate.

Table 3. Registered pesticides for desert locust control in Ethiopia

Common name	Trade name	Approved use	Registrant
Malathion	Ethiolathion	Desert locust control	Adamitulu Pesticide Formulation Plant
Chlorpyrifos	Ethiopyrifos	Desert locust control	Adamitulu Pesticide Formulation Plant
Fipronil	Adonis	Desert locust control	FS Plc. (Not Actively supplying)
Chlorpyrifos	Dursban	Desert locust control	FS Plc (Not Actively supplying)
Carbosulfan	Marshal	Desert locust control	FS Plc (Not Actively supplying)

Source: Plant Protection Directorate, MoA

Currently EELRP has planned to purchase and apply/use the following pesticides for the Desert Locust invasion prevention and control in most desert locust prone areas. These are Malathion 50% EC (100,000 liters); Chlorpyrifos 24% ULV (100,000 litres) and Malathion 95% ULV (300,000 litres). The nature of these pesticides indicated that Malathion pesticides has less toxicity and categorized (WHO) as Class 3, while Chlorpyrifos 24% ULV has moderate toxicity and categorized (WHO) as Class 2.

However, for every pesticide that will be used for the management of locust invasion Pest Management Plan (PMP) will be prepared. Adequate and quality (fit to the purpose) Personal Protective Equipment (PPE) will be provided for all as per the recommended minimum personal protective equipment (PPE) for desert locust control. Provisions of training on proper use and maintenance of PPE will be made as per WHO standard.

Linkage will be established with zonal hospital and health center and contact will be made with those institutions. Data sheets on pesticide poisoning will be provided to hospitals and health centers. Beside all staff will undergo pre-campaign medical examinations baseline will be taken. Referral system will be established. Post-campaign health examinations, residue or ecological monitoring needs to be continued after the last control operation.

Besides, only aircraft equipped by modern navigation system GPS to identify the site will be treated with geographical co-ordinate and a radio connection between the agents on the ground and the pilot will be used. Complete list of ecologically and agronomically sensitive areas list has been made in all regions. Control teams will also always make sure that no ecologically and agronomically sensitive areas, person and livestock is present in the area to be sprayed. Besides during spraying, control staff who will not directly involved in the application will verify that bystanders remain at a safe distance. Moreover, the staff will make sure withholding periods are respected after locust control treatments through intensive sensation. The aircraft will use chemical stores previously established for the army worm at Arba Minch airport, Bale Robe airport, Jig Jiga airports and Borena Tele airport.

The quality of any insecticide imported or locally formulated for locust control will be checked by national quality specifications exist and as per the FAO pesticide specifications that the packaging and labeling of the highest standard and container is durable and very robust to avoid damage, and subsequent environmental contamination. Furthermore, it will be ensured that each pesticide has safety data sheet. This is mainly done through incorporation of the above requirements in the procurement bidding document. The transportation of pesticides will be made by trucks meant for transporting chemicals owned by MoA and additional trucks which are fit to the purpose will be rented. Any terrestrial treatment devices will be regularly calibrated by the concerned body. Accordingly, the motorized spray, Vehicle mounted spray, and GPS will be calibrated before every operation on site by trained expert on control and calibration guideline for the experts. Besides, the treated data will be through with recording forms from the operational team so as to properly trace the use of pesticides. The forms used for this purpose are adopted from FAO. The technicians in charge of the management of the data will be on the RAMSES system developed by the FAO. The tablet used for RAMSEs are only ten in number throughout the country of which seven are in federal and three in Afar, Somale, Oromia and Tigray regions. Procurement of Tablet, RAMSES software and the computer will be made for regions and for the federal.

The project will make use of existing pesticides storage in the target zonal and woredas Agricultural bureau which is well-guarded to avoid local people exposure to the insecticides. The stores are located well away from habitations and main traffic routes, and a good distance downwind. The buffer zone around the pesticide storage site will be made. In addition, fuel storages are located well away from habitations and camp sites. Necessary precautionary measures also have to be taken to avoid the fire risk.

Empty containers, Contaminated PPE and accidentally spilled insecticides will be cleaned up immediately to the control center to avoid further contamination and the purchasing contract will include the pesticide manufacturer will take back the drums for reconditioning.

Potential Adverse Social Risks and Impacts of EELRP

For component one: Locust monitoring and control, the Desert Locust Response Project have potential risks and impacts that may be inadequate prior information for communities in target areas about impacts of pesticide use for locust infestation management. The other risk can be low capacity at woreda and kebele levels and coordination gaps between sector offices including technical capacity limitation on the part of implementing offices. In addition, lack of occupational health and safety of the labor force and neighboring communities' exposure to health and safety, especially exposure to pesticide and COVID-19 pandemic are among the potential risk and impacts relate to component one of EELRP.

The potential social risks and impact related to component two of the project include lack of information on the potential project's livelihoods support and compensation for out of control damages and unintentional overuse/misuse (beyond buffer zone damages) on livestock, crops, fodder or humans. The other risk is involving one clan that is more dominant over others during targeting process mainly among lowland communities. The third potential risk under component two is increase instances of domestic violence between women and men or husband and wives in relation to livelihoods support or interventions at household level by the project. In the pastoral and agro-pastoral community, it is common practice that men tend to grab resources or properties from women by force to meet their individual needs. Elite capture and/or different interest groups including traditional authority structures in influencing community's prioritization and manipulation of support provided; lack of transparency during selection of the beneficiaries for the financial and technical assistance and the exclusion of certain groups and individuals from project benefits in particular vulnerable people and the historically disadvantages regions of Ethiopia are among the social risks related to component two.

The potential social risks relevant to the component three i.e., Strengthening Early Warning Systems and Preparedness is Risks of project grievance redress mechanism to support the systematic uptake, processing and resolution of project related complaints and grievances, specifically, for spraying activities. Whereas lack of capacity in managing project at different levels particularly at woreda and the kebele levels and there might also a problem of timely allowing budget and implementing the activities; Weak linkages and coordination among institutions, sectors, programs and projects at all levels are risks and impacts related to component four of the project .

Besides, there are also risks related to cross cutting issues that include exacerbating gender based violence and sexual exploitation and abuse due to labor influx mostly associated with the cash transfer activities and to a more limited extent with other activities that involve non-local workers; overlooking of historically underserved regions and vulnerable community in general, and people with disability, children, women in polygamous unions and female headed households in particular; and potential exacerbation of vulnerable livelihoods of IDPs in project areas and worsening of conflicts among the pastoralists due to the damage of the pasture by the locust invasion and during migration to other territories in search of grazing land for their livestock.

5.2. Environmental and Social Risk Classification (ESRC) and Impacts of EELRP

5.2.1. Environmental and Social Risk Classification (ESRC)

According to the ESRC of the proposed Project, this proposed project has been classified as **having high risk** given that significant adverse environmental and social impacts are expected to occur due to implementation of the project. These expected environmental and social risks, if proper management is not designed and implemented, have been discussed as follows.

Environment Risk: The project requires awareness and realistic assessment of risks to agriculture production and livelihoods. As this project will finance procurement of insecticides, supplies of equipment for ground and aerial spray of insecticide like modern vehicle mounted sprayers (with vehicles), motorized sprayers and ULV sprayers, airplane and field vehicles, the environmental risks will mainly be associated with the spraying operation of the insecticides, occupational risk to those directly involved in spraying operations as they tend to be exposed to insecticides and thus also run the highest risk of being poisoned; for local population in the areas in which spraying is carried out, but could also be through consumption of contaminated food grown in sprayed areas.

There are also environment risks in the disposal of empty insecticide drums, bags or other containers, from contaminated or damaged personal protective equipment (PPE) or from accidentally spilled insecticides. The effects of pesticides from chronic to acute depend not only on how heavily they are applied, but also on their toxicity and persistence in the environment, their handling, and the susceptibility of non-target organisms that get sprayed, ingest pesticide granules, or consume contaminated water or food. Improper mixing, dosing, or timing, for instance, can render pesticides less effective and accelerate pest resistance, leading farmers to apply more. Even with proper use, battling pests with chemicals can lead to a kind of arms race that cyclically sends farmers reaching for more potent substances.

The use of highly toxic or persistent chemicals, including ones that have been banned in their country of origin or use, or outdated and improperly stored – risk to human and ecosystems in case of weather related impacts, which could create spillage of deposits and pollute further is another critical problem in many parts of the world; and the consequences of such chemicals can last long after their use has been uprooted. **As a result, the potential environmental risk of the project is high.** The PIU should put in place strong insecticide management operational manual as well as appropriate waste management system.

Social Risk: The key potential risk related to the operation are (i) human health risks, agricultural crop damage, (ii) overuse/misuse (beyond buffer zone damages) of pesticides during spraying on livestock, crop, fodder and humans, (iii) inadequate prior information for communities in target areas about the project, potential benefits and impacts of pesticide use for locust infestation management, (iv) lack of comprehensive compensation for out of control damages (beyond buffer zone damages) on livestock, crops, fodder or humans, (v) potential exacerbation of vulnerable livelihoods of Internally Displaced People (IDPs) in project areas, (vi) inadequate/ miscommunication about the targeting for livelihoods support, (vii) pesticide residual impact on humans, crops, livestock (including from grazing area), human and livestock water points (wells). Whereas, the social and environmental risk management for the project will depend on, (i) adhering to the requirements of safe pesticide use and management international good practices, national guidelines and World Bank Environment and Social Standard requirements outlined in the ESMF, (ii) systematic communication and community outreach to create awareness (a) the potential benefits and risks, (b) awareness and prior information about pesticide spraying; (iii) articulated and negotiated compensation mechanism for out of control (beyond buffer zone) potential impacts and damages, (iv) ensure tailored approach for locust infestation management in IDP and conflict affected areas; and (v) provide adequate information and adopt a participatory approach for the implementation of the livelihoods support component.

The project should map the services and referral pathways for any potential poisoning of humans and livestock, livestock feed including direct workers safety. The project will use and build on the FAO Desert Locust Guidelines, section 6. Safety and environmental Precautions issued 2003. The International Code of Conduct on Pesticide Management of the WHO FAO of the United Nations issued 2014; Good Practices for Aerial and Ground Application of Pesticides and develop a community outreach and communication guideline, complemented by Rural Productive Safety Nets Project ESMF, etc. The comprehensive ESRC is considered high.

The ESMF emphasizes that subproject planning should strive for plans and designs that avoid or minimize creating adverse environmental and social impacts that have to be explicitly managed. The selection, planning, design and implementation of the activities under EELRP have to be consistent with the relevant national environmental and social management requirements as well as the World Bank **Environmental and Social Standards (ESSs)** applicable to the project and international conventions. In each case, national, regional, woreda and local institutions to be involved in screening, reviewing and approving subprojects; and they will carry out their respective roles and responsibilities. The responsibilities may include identification, screening, conducting environmental and social impact assessment (ESIA), and reviewing the ESIA report for ensuring compliance to obligatory requirements under laws and regulations, and issuing approvals for subproject implementation.

5.2.2. EELRP Potential Environmental and Social Impacts

5.2.2.1. Potential Positive Impacts of the Project

The Potential positive impacts of EELRP include among others are:-

- Combating the damage created by the widespread desert locust in Ethiopia,
- protect fragile livelihoods from locust infestation and subsequently enhance the food security of communities through livelihood support in the project area,
- provision of opportunities to reclaim human capital and asset losses due to the dessert locust,
- support vulnerable households to gain access to livelihoods support,
- feed/fodder distribution and essential agricultural inputs for building livelihoods, and
- Restocking of livestock, rehabilitating rangelands, provision of veterinary services including vaccination for prevention of disease outbreaks
- Provision of employment opportunity for pesticide spraying operators.
- Reduction of poverty and food insecurity.

5.2.2.2. Potential Negative Impacts of the Project

In general, the spraying operation due to inadequate adherence to occupational health and safety standards can lead to illness and death among field workers. But even if there is no direct involvement in control operations, the local population can also be exposed to insecticides, as well. The same way, the insecticides that are used at present for Locust control may have broad-spectrum activity and are thus not entirely specific to locusts. As a result, they may adversely affect other organisms in the environment. Effluents resulting from the rinsing of pesticide drums and aircraft tanks may also pollute the environment and ground water through leakages.

Furthermore, insecticides can have a broad impact on many aspects of life and ecosystems. Effects on ambient conditions such as the incremental contribution of pollutant emissions in an air shed increases in pollutant concentrations in a water body or in the soil. The loss of biodiversity (death of plant, wildlife, and microorganisms) are also possible cumulative risks and impacts of insecticide use.

Some of well known potential impacts and risks on environment and humans including socio economic impacts are the following.

➤ **Risks to the environment:**

- pollution of ecologically sensitive habitats such as wetlands, national parks and water bodies,
- loss of biodiversity, and
- air pollution through dust emissions, and
- Pollution due to unused and obsolete pesticide, and empty pesticide containers among others.

➤ **Social and Socio-economic Risks:**

- Risks to community and workers' health,
- risks of exclusion of vulnerable people and underserved groups

- Risks to animal health and greenhouse gas emissions and climate change risks,
- inadequate prior information for communities in target areas about impacts of pesticide use for locust infestation management, availability of compensation for assets and human affected by pesticide spraying beyond the defined buffer zone and livelihood support,
- low capacity at woreda and kebele levels and coordination gaps between sector offices including technical capacity limitation on the part of implementing offices,
- Lack of awareness on the impact of pesticides among the local community
- lack of occupational health and safety of the labour force and neighbouring communities' exposure to health and safety, especially exposure to pesticide and COVID-19 pandemic,
- risk of involving dominant clan,
- GBV risks and Risk of elite capture,
- risks of GRM, and
- Risk of overlooking of historically underserved regions and vulnerable community; and Potential exacerbation of vulnerable livelihoods of IDPs in project areas and worsening of conflicts among the pastoralists.

5.3. Possible Mitigation Measures

For those identified potential negative impacts and risks stated above, the Project through this ESMF has clearly addressed these proposed mitigation measures (some among others) stated as a summary below (see Table 4 Summary of interrelated impacts and proposed mitigation measures) have to be implemented during the project lifetime. Moreover, those major proposed mitigation measures have been addressed and appropriate budget for those mitigation measures has been allocated in the draft PIM of the project. Accordingly, the IPM and the implementation of IPMP (see separate but appendix part of this ESMF's IPMP document) of this project will be guided and act in line with this comprehensive proposed mitigation measures specified in this ESMF and EELRP's PIM documents.

Table 4. Interrelated Impact/Risk Description and Proposed Mitigation Measures

Potential Impacts	Mitigation Measures
Risks to the environment <ul style="list-style-type: none"> • Pollution of ecologically sensitive habitats such as wetlands, national parks and water bodies. • Contamination of local water sources and agronomically sensitive areas. • Loss of biodiversity (death of plant, wildlife and microorganisms) • soil erosion and pollution, • degradation of the rangelands: excessive application of pesticides can contaminate soil and kills other non-target organisms which are beneficial for enriching the soil nutrient content. • air pollution through dust emissions, • generation of solid waste, • pollution due to unused and obsolete pesticide, and empty pesticide containers • potential high risk of accumulation of obsolete stocks. • Greenhouse gas emissions and Climate change 	<ul style="list-style-type: none"> • Identify all areas that are ecologically and agronomically important or particularly sensitive to insecticides. • Identifying and mapping out sensitive ecological and agronomical areas, establishing Strict Operational Procedures (SOP) and a judicious choice of pesticides (i.e. Biopesticides could be used in/near potentially sensitive areas). • Map out the various sensitive areas and make overlays with previous (or newly expected) locust infestations. • Implement Integrated Pest Management (IPM) technique and reduce reliance on synthetic chemical pesticides. (use both synthetic chemical pesticides and Biopesticides). • A separate Integrated Pest Management document is currently prepared to be used for the

	<p>implementation of the proposed mitigation measures.</p> <ul style="list-style-type: none"> • Use alternative pest control methods (physical, mechanical, and biochemical) • Recommended Classification of Pesticides for Ethiopia is Malathion which is WHO Class III and slightly hazardous. • Develop a mechanism/ design a system for safe disposal of unused and obsolete pesticide, and empty pesticide containers and never reuse. Ensure the safe disposal of empty containers, tank washings and surplus pesticides • Enhance the resilience of farm and landscape to change in climate, and pest invasion through delivering (i) climate-smart farmer packets to get food and fodder production.(ii) pasture restoration or temporary forage/feed provision and climate-resilient grazing management in pastoralist areas impacted by the locust outbreak, and (iii) in certain cases assisting with animal re-stocking with climate-resilient and stress tolerant breeds. • introduce improved, climate-resilient varieties that provide for higher yields and are resistant to pest/disease and other climate-related threats. • re-establish/restore pastureland by establishing nurseries throughout the affected area.
<p>2. Social Risks</p> <p>C1- Locust monitoring and control</p> <ul style="list-style-type: none"> ➤ Inadequate prior information for communities in target areas about impacts of pesticide use for locust infestation management. ➤ Low capacity at woreda and kebele levels and coordination gaps between sector offices including technical capacity limitation on the part of implementing offices. ➤ Lack of occupational health and safety of the labor force and neighboring communities' exposure to health and safety, especially exposure to pesticide and COVID-19 pandemic 	<ul style="list-style-type: none"> ➤ Carry out awareness-raising and provide relevant and timely information to local communities on pesticide treatment schedules and potential negative impacts. ➤ Provide public awareness and inform the local population about safety precautions using different approaches (local radio, TV, leaflet with local language, public presentation) and prepare contextualized communication strategy. ➤ Inhabitants in the treatment areas should be informed of the operation beforehand, and warned not to come close to it. ➤ Control teams should always make sure that no ecologically and agronomically sensitive areas, person and livestock are present in the area to be sprayed.

<p>C2-Livelihood protection and restoration</p> <ul style="list-style-type: none"> ➤ Lack of information on the potential project's livelihoods support and compensation for out of control damages and unintentional overuse/misuse (beyond buffer zone damages) on livestock, crops, fodder or humans. ➤ Risk of involving one clan that is more dominant over others during targeting process mainly among lowland communities. ➤ Increase instances of domestic violence between women and men or husband and wives in relation to livelihoods support or interventions at household level by the project. In the pastoral and agro-pastoral community, it is common practice that men tend to grab resources or properties from women by force to meet their individual needs. 	<ul style="list-style-type: none"> ➤ The projects LMP which provides mitigation and monitoring related to worker risks and impacts. ➤ During spraying, control staff who will not directly involved in the application will verify that bystanders remain at a safe distance. ➤ The staff will make sure withholding periods are respected after locust control treatments through intensive sensation. Training for staffs to strengthen on desert locust monitoring and control capabilities in the handling and application of insecticides and important ways to reduce health and environmental risks. The project has prepared a Labor Management Procedures and needs to be properly defined and implemented during the implementation for the project workers in accordance with the procedures. ➤ In all activities of the project, prevention of COVID-19 should be mainstreamed and the necessary protective equipment should be provided to all staffs. Besides, social distancing should be implemented during meetings. ➤ All sanitary material helpful for washing and disinfection should be availed. Stringent guideline of WB should also be used. ➤ Monitor changing livelihood dynamics with view to retargeting to include those that may fall into food insecurity; ➤ Inform and define compensation mechanism for unintended overuse/misuse (beyond buffer zone damages) of pesticides on livestock, crops, fodder or humans. ➤ Ensure awareness around importance of targeting women for livelihoods support activities Broaden the representation of community members on targeting committees with greater emphasis on the participation of women; Ensure beneficiaries receive transfers on time by addressing capacity gaps and root causes, display transfer schedule in kebele ➤ Awareness creation among the men that the women are using the support for the whole family and elders or traditional leaders should provide awareness for the community to avoid violence against women There should be
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<p>➤ Elite capture and/or different interest groups including traditional authority structures in influencing community's prioritization and manipulation of support provided; lack of transparency during selection of the beneficiaries for the financial and technical assistance and the exclusion of certain groups and individuals from project benefits in particular vulnerable people and the historically disadvantaged regions of Ethiopia</p> <p>C3- Strengthening Early Warning Systems and Preparedness</p> <p>➤ Risks of project grievance redress mechanism to support the systematic uptake, processing and resolution of project related complaints and grievances. Specifically, for spraying activities.</p>	<p>controlling mechanism of the elite capture. In this respect, beneficiaries should be realistically selected in consultation with representatives of the community</p> <p>➤ Create awareness among traditional authority structures and undertake information campaign to ensure the purpose and principles of EDLRP are understood, including targeting procedures and design targeting structures with careful consideration to the balance between formal and informal traditional authority structures and inclusive project target</p> <p>➤ Transparent reporting on project interventions</p> <p>➤ Affirmative action should be given for vulnerable people and for the historically disadvantaged regions of Ethiopia. A rapid information dissemination campaign should be designed and disseminated to fit the local context and requirements, including through local radio in appropriate languages.</p> <p>➤ Communities should be sensitized on the techniques and timing of spraying, the chemicals used, its impacts on human health, crops and livestock, and risk mitigation instructions appropriate to the specific spraying.</p> <p>➤ All community engagements, including consultations, should be developed to minimize the risk of introducing disease—particularly COVID19 into remote communities.</p> <p>➤ The GRM developed for the project should be implemented in a proper way. The trainings can cover an array of topics that include technical themes, project management, monitoring and evaluation for implementer at different levels including the woreda and kebele level implementers of the project. Create linkages among institutions, sectors, programs, and projects at all levels.</p> <p>➤ Addressing gender dimensions of the operation including gender-based violence (GBV).</p> <p>➤ The project has prepared GBV Action Plan which will be implemented and defined the potential project GBV issues thus during implementation, measures should be taken in accordance with the project GBV action plan.</p>
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<p>C4.-Project Management</p> <ul style="list-style-type: none"> ➤Lack of capacity in managing project at different levels particularly at woreda and the kebele levels and there is also problem of timely allowing budget and implementing the activities. ➤Weak linkages and coordination among institutions, sectors, programs and projects at all levels. <p>Cross-cutting issue</p> <p>The risks of exacerbating gender based violence and sexual exploitation and abuse due to labor influx mostly associated with the cash transfer activities and to a more limited extent with other activities that involve non-local workers</p> <ul style="list-style-type: none"> ➤ Overlooking of historically underserved regions and vulnerable community in general, and people with disability, children, women in polygamous unions and female headed households in particular ➤Potential exacerbation of vulnerable livelihoods 	<ul style="list-style-type: none"> ➤ The project implementing teams will regularly access and manage the risks of SEA/H and other forms of GBV extending from project activities, including key infrastructure elements as well as the receipt of cash-for-work schemes by women and other vulnerable groups and sexual exploitation and abuse risks such as sexual favors for registration or release of funds. ➤ The PIU will engage a GBV specialist dedicated to support oversight and management of these risks. ➤ Monitoring of the management of GBV risks will be an integral part of the project activities. ➤ The project will also ensure regular consultation and engagement with women and women's groups throughout the project to ensure equitable inclusion in project activities and to monitor potential risks that may emerge over the life of the project. ➤ Strengthening of the Woreda Bureaus of Women and Children Affairs as first contact points for GBV cases ➤ These sections of the community should be given special attention during the project implementation. ➤ They should be benefited from the project a certain percent ➤ The project needs to include a conflict sensitivity assessment checklist in the ESMF and also consider sensitivity of local conflict dynamics and implement in a way to avoid escalating local tensions as the works cover IDP and refugee areas. ➤ The community and the local government should put in place appropriate mechanism including meaningful consultation and full participation of the beneficiary communities during planning, design and implementation phases of the project. ➤ Attempt should be made to resolve conflicts using the traditional way and if this fails to
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<p>of IDPs in project areas and worsening of conflicts among the pastoralists due to the damage of the pasture by the locust invasion and during migration to other territories in search of grazing land for their livestock</p>	<p>resolve the conflict, government institutions will intervene to settle these conflicts.</p> <ul style="list-style-type: none"> ➤ The project should consider the livelihoods and political vulnerability in this areas and craft communication messages in accordance with the local context. ➤ The MOA and the PIU should alert the Bank any incidents related to security, conflict and potential sensitivities towards conflict in the project areas. ➤ Assist discussions between community representatives of clan leaders, <i>Kebele</i> chairpersons and elders to support peaceful inter-clan and inter-ethnic as well as cross-border relations by supporting regular forums and workshops that promote inter-ethnic dialogue.
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In addition to the above mentioned mitigation measures, the transportation, storage and management of pesticide should follow the 2003 FAO guideline on Desert Locust Guidelines, section six Safety and environmental precautions. Further, the project will follow the provisions outlined in the ESMF with specific guidance under each environmental and social standard. The preparedness MOA should also provide its pesticide storage plan, including options for central and regional storage facilities.

Establish **Community Communication Protocol**: while the project should adopt a comprehensive community communication and outreach strategy, with specific provisions to be included in each sub-project ESMP and relevant contracts. The protocol should include messaging for pesticide spraying, type of pesticide spraying strategy, potential impacts and risks on humans, livestock, livestock feed, human and livestock water wells, grievance mechanism to provide feedback.

The project will ensure the avoidance of any form of Gender Based Abuse/Sexual Exploitation and Abuse by relying on the FAO Guidance Code of Ethics and Professional conduct, Ethiopian Law and the applicable Environmental and Social standards.

6. ESMF Procedure for Subproject/Activities Specific IPMPs, ESMPs Preparation, Review, Approval, Implementation and Reporting of EELRP

This section outlines the EELRP-ESMF coordination and implementation, including the environmental and social screening procedures, approval, and implementation and reporting systems. To avoid or minimize the adverse environmental and social impacts of EELRP, the steps in the Subproject/Activities Screening and Approval procedure are set out in **Figure 2** below.

To avoid or minimize the adverse environmental and social impacts of EELRP subprojects, in all the ESMF processes, the KDC including the DA, the Woreda Agricultural offices, Safeguard specialists from the

Regional Agricultural Bureaus and PIUs are required to use the **environmental and social screening checklist and environmental and social impact rating are indicated in Annex 2**

The Information given in **section 5** above helps to avoid, minimize or mitigate the adverse environmental and social impacts of the project. The community will participate in subproject identification through Community Level Participatory Planning (CLPP) approach. The KDC which the DA is member of it participate in the environmental and social screening process. The ESMF process is consistent with the applicable National ESIA procedure and CLPP process. The responsibilities of project implementing units in doing so are also outlined in this section.

6.1. Project Coordination and Implementation Arrangement

The implementation of the EELRP and the ESMF will take place through the existing government structures from the federal to the local or community level institutions. AS this ESMF is mainly focused on Component 1, the Project's subprojects or activities addressed in this ESMF are mainly the Ground and Aerial pesticide spraying at different localities and administrative Regions of the country considered as subprojects. The other subproject of this Project is the renovations of pesticide Stores located at various part of the country.

The operation of the project, spraying of pesticide, will be carried out entirely by the staffs of MoA and respective Regional and Woreda offices. From the known fact, for spraying either contract for companies or outsourcing will not be made. While for the renovation of Stores, minor contractors will be involved.

Federal Level Implementation

The main organization responsible for implementation of this ESMF at federal level is the Ministry of Agriculture (MoA). The MoA, through the plant Protection directorate (PIU), will play a leading role in ensuring the proper implementation of the ESMF. It will ensure that the applicable GoE rules and regulations as well as the required World Bank Environmental and Social Standards are enforced. Under the MoA, the Plant protection Directorate and PSNP are responsible body for the follow up and management as well as day-to-day implementation of the project. Besides, environmental and social safeguards specialists will be assigned/ recruited to follow up the implementation of EELRP-ESMF within the Plant Protection Directorate (PIU).

Regional level implementation

Similarly, at regional level, the EELRP-IUs under the Bureau of Agriculture (BoA) is established to follow up the management as well as day-to-day implementation of the program for matters pertaining to the regions. The BoA, through the EELRP-IUs, plays a leading role in ensuring the proper implementation of the ESMF at regional level. It will ensure that the applicable GoE rules and regulations as well as World Bank ESSs are enforced. At regional level, Environmental Protection Authority (REPA) is responsible for ensuring the implementation of the ESMF through review and approval of safeguard instruments and conducting environmental and social audit of the ESMF implementation. Similarly, the environmental and social safeguard specialists within the regional PIUs coordination units are responsible for following up the implementation of the ESMF. The Region Bureaus focal experts (Region Bureau Plant Protection experts, Zone focal experts, Plant Health clinics experts and District level experts) will also play their own role in terms of risk management implementation.

Woreda level implementation

The Woreda level subject matter specialists (Plant protection, Crop development and Extension communication, Animal husbandry and animal health experts) are responsible for community sensitization, DA training, Desert Locust presence and absence information collection and transfer in frontline Desert Locust breeding Districts. The Woreda plant protection experts are leading the team (subject matter specialists) of experts during survey, information collection, and daily data transfer and control operation campaign coordination. At woreda level the implementation of ESMF in general and Screening of

subprojects/activities in particular will be carried out by Woreda subject matter specialists assigned as safeguard focal person at each Woreda together with kebele DAs. At Woreda level, environmental protection offices are established to review (desk review and field Appraisal), and issue environmental and social clearance (ESC). The overall responsibility for supervision of the implementation of the ESMF will be that of, Environmental protection organ of the woreda, and PIUs.

Kebele level implementation

Kebele Development Committees (KDCs) and DAs at Kebele level are responsible to follow up and supervise implementation of the ESMF including involving in carrying out environmental and social screening of subprojects. The Kebele level Natural Resources Management Development Agent (DA) has also the responsibility to ensure the implementation of the ESMF.

Role of Project Implementation Units (PIU)

- i. will screen any proposed subprojects in accordance with the ESMF prepared for the Project, and, thereafter, draft, adopt, and implement the subproject Environmental and Social Management Plan (ESMP), or other instruments, if required for the respective Project activities based on the assessment process as required, in a manner acceptable to the Bank, in accordance with the ESSs and the ESMF, in a manner acceptable to the Bank.
- ii. Incorporate the relevant aspects of the ESCP, including, inter alia, any ESMPs or other instruments, ESS2 requirements, and any other required ESHS measures, into the ESHS specifications of the procurement documents and contracts with contractors (if any) and supervising firms. Thereafter ensure that the contractors and supervising firms comply with the ESHS specifications of their respective contracts.

6.2. ESMF Processes and Procedures for Subproject Screening

The objective of screening is to assess any potential risk management issues early in the design phase of sub projects and identify the potential risks along with the required safeguards instruments. Screening of EELRP subprojects will be conducted by completing the designated subproject screening checklist as indicated in **Table 7 below and in Annex 2**. The environmental and social screening will be conducted by either the regional or Woreda level safeguards specialists depending on the level of anticipated risks. This is to mean that higher and substantial risk subprojects shall be screened at regional levels while those with moderate and low risk may be screened by the Woreda level safeguards experts.

A. Pesticide Spraying Subprojects/Activities

Step (i): Eligibility Checking of Subprojects/Activities of EELRP by Woreda Subject matter specialists together with DA, and KDC both at Woreda and/or at Kebele level

Woreda Subject matter specialists' team together with DAs and KDCs has to be screened subprojects/activities against the following environmental and social screening checklist to check their eligibility for EELRP action or financing. Activities having one or more nature stated in Table 5 are prohibited and not eligible for funding.

Table 5. Checklist to check subprojects/activities eligibility for EELRP action and financing

Will the sub-project/activity directly:	Yes	No
Activities that may cause long term, permanent and/or irreversible (e.g. loss of major natural habitat) impacts		
Activities that have high probability of causing serious adverse effects to human health and/or the environment other than during spray to control pests		
Activities that may have significant adverse social impacts and may give rise to significant social conflict		

Activities that may affect lands or rights of indigenous people or other vulnerable minorities		
Activities that may involve permanent resettlement or land acquisition or impacts on cultural heritage		
Activities that may cause long term, permanent and/or irreversible (e.g. loss of major natural habitat) impacts		
Activities that have high probability of causing serious adverse effects to human health and/or the environment other than during spray to control pests		
Activities that may have significant adverse social impacts and may give rise to significant social conflict		
Activities that may affect lands or rights of indigenous people or other vulnerable minorities,		
Activities that may involve permanent resettlement or land acquisition or impacts on cultural heritage		

If the answer to any one of the questions indicated in table 5 above is ‘Yes’, then the subproject/activity should be rejected unless the features can be avoided by changing other safe pest management action. If on the contrary the answer is ‘No’, then proceed to the next step. Once subprojects screened, the subproject will be sent to **Woreda relevant Implementing Agencies** (IAs) such as Office of agriculture or Pastoral community development office Head for further screening.

Step (ii): Subproject screening and reviewing at Woreda level

Once the subprojects/activities requested and screened at Kebele level, they should further be screened at Woreda level by relevant Woreda Implementing Agencies (IAs) to which the subproject refers to as indicated above in step (i). The screening of sub-projects/ activities by their implementing agency at the Woreda level should be done using the checklist provided in **Annex 2**. The following sections explain the steps that should be followed in screening sub-projects/activities.

First, the Woreda subject matter specialists team with a lead of Woreda plant protection expert would check all the subprojects if they fall under each of the following categories.

Table 6. Checklist to check projects which need special attention

Feature of Concern	Yes	No
Subproject/activities likely to use or spray pesticides near to protected areas		
Subproject/activities likely to use or spray pesticides near to natural habitat		
Subproject/activities likely to use or spray pesticides near to biodiversity hotspot areas		
Subproject/activities likely to use or spray pesticides near to water bodies such as ponds (which are very important and only alternative for domestic use of the locality)		
Subproject/activities likely to use or spray pesticides near to agronomically important areas- such as organic farms, export crops and vegetables		

If any of the EELRP subprojects/activities fall under the above category, projects in areas requiring special attention such as in the vicinity of Protected Areas or agronomically important areas, the Woreda IA should seek advice from the relevant regional PIU and the respective EFCC Authorities and ensure whether include all the necessary measures before approval of the subproject are completed. Environmental and Social Impact Assessment should be conducted prior to the commencement of the project activities. Moreover, if the subproject is likely to use pesticides, Integrated Pest Management Plan (IPMP) of the Project’s will be applied as appropriate (see Annex 1) and solid waste management plan should be prepared separately and included as a component of the ESMP. Hence the IPMP of the Project may be customized for subprojects

managed at Woreda and/or Regional level, by the regional and federal level safeguards specialists together with the Woreda level subject matter specialists, depending on the level of anticipated risks.

The Woreda relevant IAs and The Woreda level subject matter specialists should also check whether or not the subprojects fall under one of the following categories of environmental and social concerns.

Table 7. Checklist to screen subprojects of environmental and social concerns

Feature of Concern	Yes	No
Subproject/activities likely to use or spray pesticides near to protected areas		
Subproject/activities likely to use or spray pesticides near to natural habitat		
Subproject/activities likely to use or spray pesticides near to biodiversity hotspot areas		
Subproject/activities likely to use or spray pesticides near to water bodies such as ponds (which are very important and the only alternative for domestic use of the locality)		
Subproject/activities likely to use or spray pesticides near to agronomically important areas- such as organic farms, export crops and vegetables		
Risk of pesticide storage and handling		
Risk of pollution as a result of disposal of obsolete pesticide and containers		
Impact on health and safety of the community and workers		
Offsite impact of the Projects activities such as pesticide spraying		
Risk on livestock and bee keeping		

If the answer to any one of the above environmental and social concerns is ‘Yes’, the design of the subprojects/activities should be modified to overcome the said environmental and social concern. If it is not possible to avoid the environmental and social concern, the subprojects/activities should be labeled as *‘subprojects of environmental and social concern’*.

For those sub-projects/activities of environmental and social concern, a checklist of potential impacts and impact significance Table 8 below is provided as a sample.

Table 8. Sample environmental and social impact significance rating checklist

Feature of Concern	Potential for adverse impact				
	None	Low	Medium	High	Unknown
Subproject/activities likely to use or spray pesticides near to protected areas					
Subproject/activities likely to use or spray pesticides near to natural habitat					
Subproject/activities likely to use or spray pesticides near to biodiversity hotspot areas					
Subproject/activities likely to use or spray pesticides near to water bodies such as ponds (which are very important and the only alternative for domestic use of the locality)					
Subproject/activities likely to use or spray pesticides near to agronomically important areas- such as organic farms, export crops and vegetables					

Subproject/activities likely to use or spray pesticides near to PCR, ex. close to churches, mosques and other sites with PCR significance					
Risk of pesticide storage and handling					
Risk of pollution as a result of disposal of obsolete pesticide and containers					
Impact on health and safety of the community and workers					
Offsite impact of the Projects activities such as pesticide spraying					
Risk on livestock and bee keeping					

The checklist provides potential impacts for EELRP subprojects/activities with different rate of potential impacts. Go to the relevant section of the checklist and mark (✓) each potential impacts listed as None, Low, Medium, High or Unknown.

Once the checklist is filled, count the number of potential impacts marked as **None**, **Low**, **Medium**, **High** and **Unknown**. The table below (table 9) helps you to determine whether or not the subprojects/activities should be labeled as ‘subprojects/activities of environmental concern’ and further actions need to be taken at this stage before proceeding to the next level.

Table 9. Rating of potential impacts of EELRP subprojects/activities

Rating of potential impacts of EELRP subprojects/activities	Action needed
Subprojects are marked from <i>low</i> to <i>medium</i> for potential impacts	Prepare an ESMP with appropriate mitigation measures and incorporate into the design of the subprojects/activities. During preparation of ESMP, refer to the potential mitigation measures listed for each potential impact in section 5 of this ESMF. The general IPMP prepared as part of preparation of the parent project shall also be applicable for these kinds of subprojects.
Subprojects cause only one <i>high</i> potential impact	Refer to the potential mitigation measures listed for each potential impact in this ESMF, to prepare the ESMP and then incorporate the potential mitigation measures into the design of the subprojects. And further prepare special plans such as IPMP and Waste management plan as appropriate
Subprojects cause more than one <i>high</i> potential impacts	These types of subprojects/activities will be labeled as ‘subprojects/activities <i>of environmental and social concern</i> ’ because changing the design may not avoid the anticipated adverse impacts.
Subprojects where it is difficult to predict the potential impacts, i.e., subprojects which have two or more <i>unknown</i> potential impacts.	These subprojects/activities should also be labeled as ‘ <i>subprojects of environmental and social concern</i> ’ because of the many unpredictable potential impacts.

For subprojects/activities which are not labeled as ‘**subprojects of environmental concern**’, environmental clearance is issued by Woreda Environmental Organ to Woreda Agriculture Office or Pastoral Community Development Office to continue the planned subproject/activities. For those

subprojects which are not labeled as subprojects of environmental concerns but requiring preparation of environmental and social management plan (ESMP), the ESMP should be prepared and sent to the woreda environmental organ for review and approval. . However, ESIA and customized IPMPs shall be reviewed and cleared by the respective regional EFCC Authorities.

6.3. Guideline for Subproject Review and Approval at Woreda level

The ESMP of subprojects/activities (which are not labeled as subprojects of environmental and social concern) prepared by the Woreda Agricultural offices and Pastoral Community Development Offices should be reviewed by the Woreda Environmental Organ. In doing so, the Woreda Environmental Organ follows two appraisal steps to appraise/review subprojects of which are not labeled as subprojects of environmental concern. The reviewing and approval of ESMP should be carried out by the Woreda Environmental Organ.

Desk appraisal of subprojects

The Woreda Environmental Organ check the environmental and social screening checklist and impact rating checklist filled by the Woreda implementing agency to see whether or not it is done correctly and as per the requirement of the ESMF guideline. Woreda environmental organ also review the ESMP including customized IPMP to check whether all the necessary information are included; and is done using the ToR presented for this purpose.

Field Appraisal

If the desk appraisal indicates that the proposed subproject may have environmental or social concerns that are not adequately addressed in the application, or if the application meets certain criteria but the review authority requires field appraisal before the application can be considered further. For the field appraisal, the Woreda environmental organ uses the field appraisal form. It should be noted that the woreda environmental organ should render technical support for woreda implementing agencies when screening subprojects, impact rating and during the preparation of ESMP.

After carrying out desk review and field appraisal, the woreda environmental organ issues environmental and social clearance (ESC) to the woreda relevant IAs to which the subproject is to be financed by EELRP. The subprojects should not be financed and implemented by the woreda IAs before ESC is obtained from the woreda environmental organ. The finance section/unit of the woreda IAs should not process any payment without the ESC letter, attached with the request for payment.

For subprojects labeled as '*subprojects of environmental and social concern*' proceed to the next step.

Step (iii): Notification of environmental and social concern subprojects

EELRP subprojects/Activities which are labeled as 'subprojects of environmental and social concern' should be communicated to regional line bureaus which the subproject refers. The regional line bureau communicates the subprojects with environmental and social concerns to the regional environmental organ.

Step (iv): Review of notified subprojects by regional environmental organ

The regional environmental organ should make note of the following points when reviewing/appraising subprojects of environmental concern.

EELRP subprojects/activities which involve at a time in more than one Woreda of the Region and if the environmental concerns shared with those Woredas, the regional IA (Bureau of Agriculture) should undertake screening of subprojects; prepare ESMP of the subprojects and customized the Project's IPMP to respective Regional conditions then submit these documents for approval by respective regional Environmental Organ. In cases where subprojects do not require preparation of an ESMP and IPMP, all the environmental and social impacts as a result of the subprojects will be managed by the mitigation measures included in section 5 of the ESMF.

The regional environmental organ should advice the concerned regional implementing agency on the following points:

1. Communicate the decisions for each of these subprojects of environmental and social concern with regard to the need or not of a full ESIA.
2. If a full ESIA is required, the regional environmental organ advice the concerned regional implementing agency to prepare TOR. The regional environmental organ incorporating its comment, return the TOR without delay to the implementing agency to hire an ESIA consultant, to carry out the ESIA. The ESIA consultant prepare ESIA report and submit to regional environmental organ for review and approval
3. In this regard, the regional and federal EELRP environmental and social safeguards specialists provide technical support in the preparation of the TOR.
4. If a full ESIA is not required, the regional environmental organ provides the concerned implementing agency with guidelines in connection to technical matters, related to the preparation of environmental and social management plan (ESMP) or customized the Project's IPMP. The concerned implementing agency should prepare and submit the ESMP to regional environmental organ for review. The regional environmental organ review and issue environmental and social clearance as soon as possible to avoid implementation delay.

Similar to the Woreda level review and appraisal, the regional Environmental Organ may follow both the desk and field appraisal procedure to appraise subprojects of environmental and social concern and which do not require full ESIA.

Step (v): Conducting ESIA study. In general EELRP at project level has been classified as **high risk project**. Hence whenever necessary (other safeguard instruments such as the IPMP and waste management plans not adequate to address project risk and impacts) for this project a **full ESIA** has to be prepared by the project proponent and subjected for review by the World Bank, and reviewing by appropriate Federal or Regional Environmental Regulatory body for granting **Environmental Clearance**.

If the screening report for a project indicated that full ESIA is required, all concerned regional implementing agencies of EELRP subprojects/activities are responsible for ESIA. ESIA should be done by licensed ESIA consulting firm, as stipulated in the directive of EFCC. The responsibility of Environmental Organ at regional level is to review the terms of reference for conducting ESIA, and later the ESIA reports, and give Environmental and Social Clearance for subprojects to be implemented within their own regions. It has to be noted that all ESIA's are subject to the World Bank's review and clearance prior to initiation of the proposed subproject activities. Besides, ESIA's and IPMPs shall be disclosed via the government's websites and the WB's external website. In both cases, the cost of the ESIA study is part of the budget of EELRP subprojects.

Step (vi): Reviewing ESIA report by regional Environmental Organ

The final step in this ESMF process is the review of the ESIA reports produced for EELRP and/or subprojects/activities of environmental concern. This review should be conducted by the Federal and/or

regional environmental organ in the shortest possible time to avoid delaying EELRP subprojects/Activities from implementation. The environmental and social management plan (ESMP) including IPMP prepared by the regional IAs should be reviewed by the regional environmental organ. Both field appraisal and desk review shall be done by the regional environmental organ.

Criteria for Safeguard approval

Two decisions can be made based on the ESIA of the Locust Control Project.

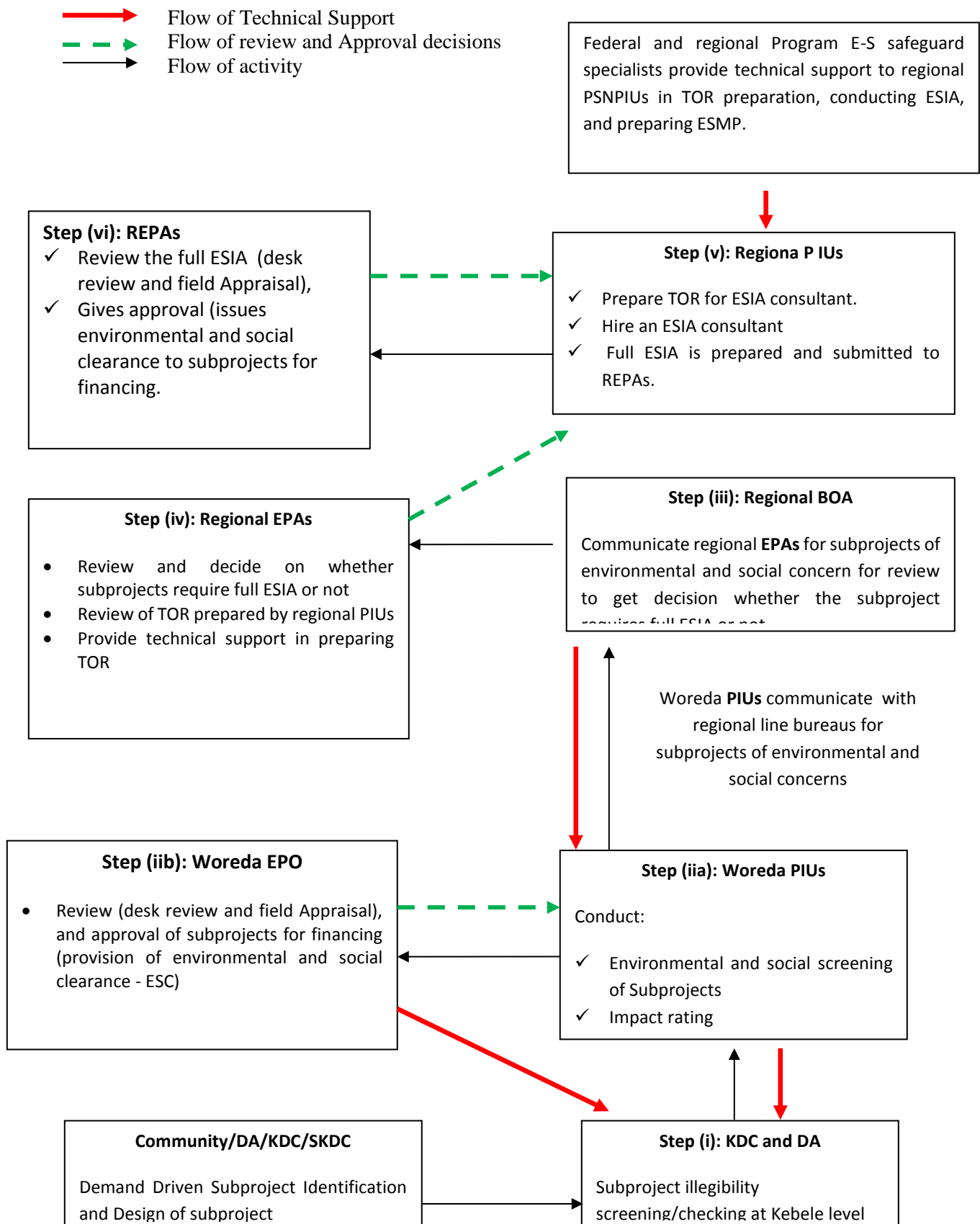
1. If the ESIA is in conformity with the applicable World Bank Environmental and Social Standards and the environmental and social laws and guidelines of Ethiopia, the subprojects will be granted an environmental and social clearance.
2. On the other hand, if the ESIA does not fulfill the Bank's Environmental and social requirements and the country's environmental laws 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 EPA should communicate the decision of the review of the ESIA report to concerned regional implementing units and regional project coordination units as soon as possible. The regional PIUs should not implement the subprojects unless they received environmental and social clearance from the respective regional EPA. The finance unit of each PIU implementing agencies which their subprojects have environmental and social concern and are required to prepare ESMP/ESIA report should not issue any payment unless the environmental and social clearance is attached with the request of payment. The ESIAs prepared for EELRP should also be submitted to the WB for review and no objection. Figure 2 shows the flow chart for EELRP-ESMF planning and implementation process.

B. Renovation of Pesticide Stores subproject

The nature of this subproject, since only minor renovation activities would be undertake, has not significant environmental and social concerns. However, there could be some occupational related issues like OHS and the COVID 19 which needs special attention. Hence the contractors for the renovation of these stores should follow the WB ESHS procedures and Interim Guidance Note on Construction Measures during COVID 19.

Fig. 2. Flow chart for the ESMF Processes and Procedures



6.4. Reporting of ESMF Implementation

Local authorities are normally required to submit quarterly and annual reports, regarding the implementation of activities proposed in the ESMP/ESIA and IPMP. 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, with regard to implementation of ESMF; and
- Practical information for undertaking an annual review.

In view of the significant nature of the impacts of some of the activities of EELRP, a robust system of compliance monitoring and reporting should be in place.

Quarter and annual reports should be prepared at Woreda, regional and federal levels. At *Woreda level*, quarter and annual report will be prepared by Woreda Agricultural office. The objective of the report is to provide a feedback on the activities and observations on the implemented EELRP subprojects over the review period in the Woredas.

The regional EELRP-CU Environmental and Social Safeguard Specialist will compile the reports submitted from the wereda Agricultural offices and accordingly quarterly and annual regional ESMF performance reports has to be prepared and submit it to the federal EELRP-CU (PPD).

At the federal level, the quarterly and annual reports will be compiled and prepared by Environmental and Social Safeguard Specialists of Federal PIU and will be submitted to the MoA and the World Bank country office. The report should also include the following reports as specified in the Project's ESCP>

REGULAR REPORTING: Prepare and submit to the Bank regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to, the implementation of the ESCP, status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and the grievance mechanism.

INCIDENTS AND ACCIDENTS: Promptly notify the Bank of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, communities, or workers.

INTERNATIONAL ALIGNMENT: An internationally renowned agricultural agency (FAO) shall regularly review the Project's implementation, monitoring, and reporting provisions made under the Project.

Annual Review

The objectives of conducting annual reviews of ESMF implementation are two-fold:

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

The annual reviews are intended to be used by project management to improve procedures and capacity for integrating natural resources and environmental/social management into project operations. They will also be a principal source of information to Bank supervision missions.

Annual reviews should be undertaken after the annual ESMF report has been prepared and before Bank supervision of the Project, at the closing of each year of the project. It is expected that each review would require **3-4** weeks of field work (interviews, examination of subprojects), and that the review report would be completed within 2 weeks of completing the field work. The principal output is an **annual review (audit) report** that documents the review methodology, summarizes the results, and provides practical recommendations. Distinct sections should address a) ESMF performance and b) cumulative impacts.

It is expected that these reviews will be carried out by an independent local consultant, NGO or other service provider that is not otherwise involved in the project. Copies of the annual review report should be delivered to project management, to each district office responsible for appraisal, approval and implementation of subprojects, and to the Bank. Project management (federal, regional or woreda) may also host federal, regional or woreda workshops to review and discuss the review findings and recommendations.

7. ESMF Implementation Monitoring

7.1. Roles and Responsibilities

The primary aim of monitoring is to provide information that will aid in impact management, and to achieve a better understanding of cause-effect relationships and to improve the prediction and mitigation methods for impacts.

The data collected during monitoring is critical in ensuring that the mitigation measures, priorities listed in the ESMP/IPMP, are implemented as approved and that they are effective in addressing the impacts. It also ensures that the project complies with the existing environmental standards and limits and the mitigation measures recommended in the ESMP/IPMP are implemented and maintained throughout the operational life of the project.

Monitoring indicators that measure the impacts on the environment and communities in the context of mitigation measures are critical to ensure fulfillment of all the commitments made in the approved ESMP/ESIA. Monitoring is also important to keep track of changes that may happen in the environment and communities because of other global and local changes, such as changes in water availability due to droughts, economic crisis and or in a migration. After the project is completed, basic monitoring efforts will continue during project remediation.

After the required safeguard instruments (ESIA, and/or ESMP, IPMP, and SA, etc)are prepared, reviewed and approved, and environmental and social clearance received from the EPAs), the relevant implementing agencies (either at woreda or regional or both level) which the subproject refers to are the main responsible bodies to implement and ensure the implementation of the mitigation measures identified and planned in the ESMPs and/or ESIA, SA and IPMP. The community has also contribution in the implementation of mitigation measures especially on ground or areal insecticide spraying subprojects and others are implemented either in cash, or labor or both.

7.1.1. The objectives of ESMF monitoring and follow up

- To alert project managers and implementers by providing timely information about the success or otherwise of the environmental and social management process outlined in this ESMF in such a manner that changes can be made as required ensuring continuous improvement to EELRP environmental and social management process.
- To make a final evaluation in order to determine whether the mitigation measures incorporated in the ESMPs/IPMPs have been successful in such a way that the pre-project environmental and social condition has been restored, improved upon or is worse than before and to determine what further mitigation measures may be required.

7.1.2. Types of monitoring

Process monitoring

The purpose of environmental and social process monitoring is to check whether the different types of safeguard instruments (ESMP, ESIA, IPMP and SA, etc) are prepared, reviewed, and approved; the quality of the safeguard instruments; the implementation of the mitigation measures identified and planned in the safeguard instruments; the participation of the community and other stakeholders in all these process; capacity building processes; reporting; and others. The monitoring is done by EDLERS implementing agencies at Woreda and regional level involving in implementing the ESMP/ESIA, and IPMP; woreda and regional NR case teams; and the community. Monitoring will be carried out in accordance with the ESMP and other safeguard instruments prepared for each subproject. Moreover the monitoring and reporting modalities, according to the ESCP of the Project's, has been specified here under the following table.

Monitoring and Reporting specified by the ESCP

Monitoring and Reporting	Time frame	Responsible Body
REGULAR REPORTING: Prepare and submit to the Bank regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to, the implementation of the ESCP, status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and the grievance mechanism.	annually Project implementation period	MoA and respective organs
INCIDENTS AND ACCIDENTS: Promptly notify the Bank of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, communities, or workers.	Notification of the Bank within 48 hours. Root-cause analysis to be provided within fifteen days.	MoA and respective organs
INTERNATIONAL ALIGNMENT: An internationally renowned agricultural agency (FAO) shall regularly review the Project's implementation, monitoring, and reporting provisions made under the Project.	Reporting quarterly conveying updated results of FAO's review throughout the Project implementation period.	MoA and respective organs

Result monitoring

The result 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.

All stakeholders undertaking process monitoring above conduct result monitoring. The purpose of result monitoring is to support compliance with safeguard policies and laws, 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. Besides, the World Bank, as necessary, will periodically conduct reviews of the implementation of the ESMF, SA, and other safeguard instruments under EELRP. The woreda and regional EPOs also conduct environmental and social audit periodically.

Moreover, final evaluation will be done by independent consultant in order to determine whether the mitigation measures designed into EELRP interventions have been successful in such a way that the mitigation measures are properly in place and environmental and social condition positively maintained.

7.1.3. Guideline for Monitoring of EELRP Activities

The term monitoring is used here for the collection, analysis, interpretation and dissemination of data on the effects (both intentional and unintentional) of operational locust control. This includes control efficacy, effects on human health, impact on non target organisms and the presence of insecticide residues. The objective of monitoring is to identify what goes right in operational locust control, and what can be improved. Monitoring is therefore an essential element of a locust control campaign. It aims to optimize control, improve cost efficacy and minimize adverse side-effects on human health and the environment.

In this guideline, three types of monitoring will be distinguished: rapid assessments (done by locust control teams), dedicated operational monitoring (carried out by special monitoring teams) and in-depth monitoring (executed by specialized research teams). These three types of monitoring differ by the activities that are carried out, the time span in which the work has to be done and the functional links to the control campaign organization. Rapid assessments focus on insecticide application quality, control efficacy and the reporting of incidents. Both dedicated operational monitoring and in-depth monitoring look in more detail into control efficacy, environmental impact, and occupational health and insecticide residues. The main difference is that operational monitoring attempts to cover many control actions, in relatively limited detail, while in-depth monitoring looks at only a few control actions, but in much more detail. The first two types of monitoring will be discussed in more detail in these guidelines. In-depth monitoring, on the other hand, will only be briefly touched upon, as it is rather specialized and therefore not always part of a normal control campaign.

Monitoring of the implementation of the ESMF is an important aspect of ensuring that the commitment to environmental and social sustainability of the Project is being met. The regular monitoring of the implementation of the ESMF, IPMP, SA, LMP, ESCP and SEP will be overseen at regional level.

The ESMF Specialists assigned at Regions should receive the relevant information from each Woreda focal persons assigned for this purpose. Direct supervision of project implementation will be undertaken at kebele, woreda and regional levels, and the data will be used as inputs to the EELRP M&E system and that will form part of the overall EELRP MIS.

- The DAs, with assistance if required from the concerned, woreda line office will ensure that the specified mitigating measures for the EELRP subprojects are implemented,
- The Woreda NR Expert in the NR Case Team, in liaison with the Woreda (Environmental Protection Office (EPO), will verify that the proper procedures are being followed for all the EELRP activities in the woreda, and that no significant negative environmental and Social impacts are taking place. Where such impacts may occur, the woreda EPO will provide advice on actions to be taken.
- The E &S Specialist(s) in the EELRP coordinating units at all level will monitor, in conjunction with the respective Environmental Protection Organs,

The ESMF Specialist in the federal Project Implementation Unit will monitor the overall implementation of the EELRP's ESMF, and

The PIU will also ensure that the implementation of the recommendations in the Social Assessment are monitored, ensuring that all prescribed measures for under-served and particularly vulnerable groups have been implemented.

The PIU will develop a Social Management and Monitoring Plan and during implementation will submit

regular separate monitoring reports to the World Bank showing the status of the implementation of the Plan, issues faced, mitigating measures implemented, public meetings held, community development activities started, etc. The detailed M&E of the implementation of this ESMF will be specified in the design of the EELRP system.

7.1.4. Targeted Monitoring and Evaluation

In addition, *targeted* monitoring will be conducted annually by EELRP. Strengthening Reviews, in which a sample woreda in each region will be visited and spot-checked in order to verify the implementation of the revised ESMF, and the SA, procedures. **Annex 5** shows the contents of a monitoring report and an example of Environmental Monitoring Plan is provided in **Annex 3**.

7.2. Environmental and Social Auditing

Environmental and social auditing can be defined as "a systematic, periodic, documented and objective review of project activities related to meeting environmental requirements". An audit should assess the actual environmental and social impact, the accuracy of prediction, the effectiveness of mitigation and enhancement measures, and the functioning of monitoring mechanism. Further, the review should be systematic and objective. The objectives of environmental and social audits are to:

- verify compliance with environmental and social requirements;
- evaluate the effectiveness of environmental and social management plan and;
- Assess risk from regulated and unregulated practices.

Environmental and social auditing has been universally accepted as one of the components of Environmental and Social Management Plan (ESMP) and should be undertaken during construction, operation, and upon the completion of the project decommissioning as well in the entire life of the project.

The responsible institution to undertake environmental and social audit is the regulatory body which is the environmental protection authority/agency/office at various levels. For EELRP subprojects/activities, regional and woreda level Environmental Protection Authorities /agencies/offices are responsible to undertake environmental and social audit for subprojects which are reviewed, approved and implemented at regional and woreda level respectively. Environmental and Social audit can be done once in a year or every two years. The audit report should be communicated to the implementing agencies which the subproject refers to and to the regional PIU. The regional PIU should submit the audit report to the federal MoA and PSNP-CU (EELRP-CU). The contents of an environmental and social audit report are provided in Annex 7.

8. Capacity Building, Training and Technical Assistance

Effective implementation of ESMF requires technical capacity in the human resource base of implementing institutions and logistics. Implementers need to understand inherent environmental and social issues and values and be able to clearly identify their indicators.

Therefore, Capacity building training is an important element of EDLERSP. The trainings for experts, scouts, workers and awareness raising for the community will be continuously targeted. The trainings include:

- Capacity building for the PIU staff on stakeholder mapping and engagement, specific requirements on the ESMF, ESIA, IPMP, and the social development plan prepared based on the social assessment.
- Training for farmers, pastoralists, scouts, experts and officials at different levels on locust infestation control management, and others using the FAO Desert Locust Control Training Manual.
- Community awareness (including clan and religious leaders) raising trainings on community health, safety, and the impact of pesticide spraying before, during and after the operation.
- Specific aspects of environmental and social assessment.
- Train workers on emergency preparedness and response.
- Training operation workers on occupational health and safety requirements of the project.
- Training workers on GBV and response mechanism.

Capacity building training is an important element of the Program. The trainings for experts, scouts, workers and awareness raising for the community will be continuously targeted. The trainings include:

- Training on the GoE environment, social, health and safety provisions, and as well on the World Bank's ESF/EHS Guideline requirements,
- Capacity building for the PIU staff on stakeholder mapping and engagement, specific requirements on the ESMF, ESIA, IPMP, and social development plan to be prepared based on the social assessment.
- Training for farmers, pastoralists, scouts, experts and officials at different levels on locust infestation control management, and others using the FAO Desert Locust Control Training Manual
- Community awareness (including clan and religious leaders) raising trainings on community health, safety, and the impact of pesticide spraying before, during and after the operation.
- Specific aspects of environmental and social impact assessment.
- Train workers on emergency preparedness and response.
- Training operation workers on occupational health and safety requirements of the project.
- Training workers on GBV and response mechanism.
- Review and approval of locust control proposals.
- Training on waste management, including insecticide empty containers and obsolete chemicals
- Environmental Audit/ monitoring training
- Assessment of impacts and design of site-specific monitoring measures which also takes into account social issues and impacts, over and above the standard measures recommended in the Technical Materials
- Incorporation of mitigation measures in subproject designs and construction documents
- Public consultations in the ESIA process which includes women and other vulnerable groups

8.1. Institutional Capacity for ESMF Implementation

The institutional structure for managing the environmental and social aspects of the program involves four levels. These four levels are **Federal Level, Regional Level, Woreda Level, and Kebele Staff.**

As it was discussed above the implementation of the EELRP and the ESMF including IPMP will take place through the existing government structures from the federal to the local or community level institutions. This structure has been believed strong and having best experience on DL control of the country. However the capacity assessment reveals that there are some areas need qualified personnel's for the overall implementation of the ESMF and IPM. These are the following recommended manpower for effective implementation of the ESMF, among others.

- Hire, as a consultant, pest management specialist , who lead the Desert Locust survey and control operation (Under project),
- Hire ESHS specialist Under Project) working as Environmental and Social Safeguard Specialist,
- At Regional level officially appoint safeguard specialists from BoAs and/or Bureau of Pastoral community developments (trained or to be trained) and allocate operational budget
- At Woreda level officially appoint safeguard specialists from Agricultural offices and/or Pastoral development offices (trained or to be trained) and allocate operational budget.

8.2. Estimated Budget for the Implementation of EELRP's ESMF Requirements

8.2.1. Estimated budget of ESMF Implementation

The total amount budget required, for the implementation of the EELRP's ESMF related with capacity building, monitoring and auditing of both the environmental and social management, is 134,517.38 USD. For the detail see Table 10.

Table 10. Estimated budget in Birr for the implementation of ELDERP's ESMF requirements

S.N	Activities	Implementation Schedule						Total (Birr)
		2020		2021				
		July	December	Jan	Jun	July	December	
1	Capacity Building Training							
1.1.	Training of trainers on Environment and Social Management /CD/at Federal level.		611,540					611,540
1.2	Training of experts at woreda and kebele level			1,950,750				1,950,750
2	Monitoring and providing technical support on ESMF implementation							
2.1.	Federal level			34,200	34,200		34,200	102,600
2.2.	Regional and Woreda level		34,200	34,200		34,200		102,600
3	Bi-annual Review Workshop on		395,040		395,040		395,040	1,185,120

	Environment and Social Management organized by Federal							
4	Annual Internal Environmental and social audit							
4.1.	Federal					102,600		102,600
4.2.	Region				102,600			102,600
	Total		1,040,780	2,019,150	531,840	136,800	429,240	4,157,810
	Contingency 10%							415,781
Grand Total								4,573,591

8.2.21. Overall estimated budget for Implementation of all ES safeguards

The proposed budget for the implementation of IPM in association with ESMF requirements has been made based and framing on the EELRP's Project Implementation Manual (PIM). The PIM has clearly indicating and earmark budget, under Annex 2 of the document (Project cost summary) for capacity building (Trainings and large community awareness creations); Health and Environmental impact assessment & monitoring; and hiring one consultant are some among others.

Accordingly under Component 1, Provision of PPE for 30,000 persons with total amount of 6 million USD; Health and Environmental impact assessment including monitoring activities 2.5 million USD for two phases (Phase 1 and 2); for about 70,000 community and village leaders sensitization workshops about 980,000.00 USD; and for about 72,128 Technical and Experts training cost about 6,048,000 for 1st and 1,512,000.00^{2nd} phase have been budgeted. Under Component 4, for hiring consultant 150,000.00 USD has earmarked. Most of the proposed activities for the implementation of IPMP have covered and addressed in the IPM. For some proposed activities not clearly addressed in the PIM, such as Research activities, renovation of big pesticide stores and transportation of empty or damaged containers to the center, an estimated cost has been proposed. The total estimated budget earmarked in the PIM together with new proposed activities to be inclusive in the suggested PIM budget will be about **17 million USD**.

a. Implementation and Monitoring of the IPMP

For implementation and monitoring of the IPMP the following budgets have been earmarked and it should be proportionally dispersed for each activity stated in the proposed action for the implementation of the IPMP and Monitoring (see Table 6 and Table 7).

- Provision of set of PPEs for 30,000 persons with total amount of 6 million USD
- For Health and Environmental impact assessment, which includes baseline ecological feature assessment (before & after project intervention) and monitoring; and pre and post health examination of persons involved in pesticide and related monitoring, a total of 2.5 USD has been budgeted
- For renovation of big pesticide stores found in some part of the country 40,000.00 USD has been proposed (not indicated or specified in the PIM)
- For collection and transportation of empty and damage pesticide containers to the center 10,000.00 USD has been proposed (not indicated or specified in the PIM)

b. Training and Capacity Building

For trainings and capacity building the following budgets have been earmarked and it should be proportionally dispersed for each activity stated here under. For some proposed activities not clearly addressed in the PIM, such as Research activities an estimated cost has been proposed.

- Sensitization workshops For about 70,000 community and village leaders and Make a Panel discussions among Project coordinators and Key Governmental Ministries about 980,000.00 USD budget has earmarked
- For ToT on safe use, application and disposal of pesticide for Federal and Regional Experts; ToT on ESMF and relevant Environmental and social frameworks, plans and instruments for Federal and Regions appointed safeguard specialists, relevant technical staff and regulatory body (respective environmental organs); Cascading these two ToTs to Zonal, Woreda experts and Das; other trainings as require about 6,048,000 for the 1st and 1,512,000.00 for the 2nd phase have been budgeted.
- For research activity, on assessing and come with mapping and documenting country wide best practices- Non pesticide control methods applying for all DL lifecycle stages, about 50,000.00 USD has been proposed (not indicated or specified in the PIM)
- For research and trial on low toxic pesticides and biopesticides, such as Fipronil (pesticide) or blanket application of Metarhizium acridium (biopesticide), and others suggested as low toxic in trial carried out elsewhere in locust prone countries, about 70,000.00 USD has been proposed (not indicated or specified in the PIM)

c. ES risk management staffing

For trainings and capacity building the following budgets have been earmarked and it should be proportionally dispersed for each activity stated here under. For some proposed activities not clearly addressed in the PIM, such as Research activities an estimated cost has been proposed.

- For hiring a consultant, pest management specialist , who lead the Desert Locust survey and control operation (Under project) about 150,000 budget as salary has been earmarked
- For hiring ESHS specialist (Under Project) working as Environmental and Social Safeguard Specialist budget has not earmarked in the PIM. But as a proposal 1000 USD/monthly has been proposed (not indicated or specified in the PIM)
- At Regional level officially appoint safeguard specialists from BoAs and/or Bureau of Pastoral community developments (trained or to be trained) and allocate operational budget. The budget has not earmarked in the PIM. But as a proposal for each regions assigned experts 200 USD/monthly budget for operational activities including monitoring and reporting has been proposed (not indicated or specified in the PIM but could be allocated from monitoring budget)
- At Woreda level officially appoint safeguard specialists from Agricultural offices and/or Pastoral development offices (trained or to be trained) and allocate operational budget. The budget has not earmarked in the PIM. But as a proposal for each 157 woredas assigned experts 100 USD/monthly budget for operational activities including monitoring and reporting has been proposed (not indicated or specified in the PIM but could be allocated from monitoring budget).

Section 10. Conclusion

IPM is one of the best pest management options recognized and being practiced in all over the world for sustainable development by ensuring safe environmental and social wellbeing. Hence recommended actions of the IPMP strategies and activities stated in Table 6 have to be implemented by all actors at all level as per their role and responsibility. In line with this the coordination of implementing agencies, partners and regulatory bodies at all level is very crucial for effective implementation of the IPMP.

Other factor for effective implementation of IPMP is capacity building and institutional strengthening which supported with adequate budget for these interventions. As it has been confirmed in the Project's PIM document (budget summary) for some activities adequate budget has been allocated for effective implementation of IPMP. However, there are also some activities such as research and Pesticide management (renovation of stores, solid waste management and others) not adequately addressed or budgeted.

If the allocated budget in the Project's PIM document properly and effectively applied for the intended purposes and if some activities not budgeted in the PIM has been considered, the implementation of IPMP will be effective and would be a good practice for other similar projects of the country

9. Stakeholder Engagement and Information Disclosure

Interviews were conducted to incorporate the views and concerns of key federal stake holders with regard to storage, transportation and use of Pesticides, waste handling mechanisms, institutional capacity to implement EELRP etc, and the summary of the results of the consultations is summarized in section 9.3 of this document.

9.1. Stakeholder Consultation and Disclosure of ESMF

Stakeholder consultation is an integral part of the ESMF social assessment (SA) and provides inputs for the preparation of Environmental and Social Management Framework (ESMF), the Stakeholder Engagement Plan (SEP), and more importantly for effective implementation of the IPM. The overall objective of such consultations was to document the concerns of the stakeholders with specific reference to the project planned interventions. The consultation meetings were organized basically for two important purposes, i.e., (1) to share project objectives and proposed project interventions with the identified stakeholder groups and (2) to consult with the stakeholders and document their concern, with particular reference.

Accordingly, the project has conducted a national and Regional stakeholders' public consultation on the use of pesticides to control the locusts. Community consultation is a method used to ensure a broad participation of the local communities. The usual community consultation was not satisfactorily done due to COVID 19 crisis and the restrictions made following that by the government of Ethiopia on the April 9, 2020 State of Emergency on gathering not more than four people at a time. Hence, the consultation has limited to stakeholders working in relation to desert locust control at different levels (see Annex 8, 9 and 10). This has been substantiated by extensive community consultations assessed so far for various related aspects and concerns. Furthermore, consultations will be conducted in a sample of the target Regions and Woredas during project lifetime as appropriate. This will bring together representatives of respective Woreda governments, local communities and their leaders, and local CBOs. After the national, Regional and Woreda stakeholders' consultations, the issues raised will be integrated in the IPMP, the IPMP will be disclosed at the website of the Ministry of Agriculture, and a link shared with the Bank for disclosure on the Bank's info shop. Additionally, the IPMP will be published in at least two dailies newsletters with wider

national and Regional coverage and through local FM radios.

9.2. Grievance Redress Mechanism

EELRP will develop a grievance handling mechanism, which is to be applied for all activities. EELRP will conduct separate sessions at each affected Woredas to inform the affected communities about the desert locust control, expected impacts of the proposed chemical and safety measures to be observed, and to solicit inputs from the stakeholders. During the implementation of EELRP Woredas and Kebeles will maintain a complaint record database to enable complaint tracking and review and establish a complaint handling committee and involve Woreda and Kebele grievance handling committees in grievance handling processes.

A GRM is oriented toward providing solutions and incorporates the principles of transparency, accessibility, due diligence, and responsiveness. The project will also recognize customary and/or traditional conflict resolution mechanisms. The project will equally ensure that grievances related to GBV are recognized and referred to respective service providers based on a survivor-centered approach (that is, always based on the demands of survivors and ensuring confidentiality). Such grievances shall not be handled according to standard GRM procedures but by the Woreda Women and Children Affairs Office or female GBV focal points to be selected and trained to provide basic referrals.

9.3. Summary of stakeholder consultation of the ESMF

The summary of the stakeholders' consultation meets the requirements of World Bank ESS7 of the ESMF and to achieve this, in each of the target Regions, selected government bodies linked with the issues were consulted on the potential positive and adverse effects of the project, their views and concerns towards the project. Accordingly, they pinpointed that the project might more effects or risks on large community as a result of pesticide spray activities in general and in vulnerable or disadvantaged groups in particular as these sections of the communities have not been accessed to opportunities relative to other social groups in the country. Moreover, rapid mobilization for emergency response under the government requires rapid decision-making that does not always have time and space for adequate consultation of other stakeholders. This can lead to discontent, especially if compounded by mis-targeting of critical interventions for locust control and livelihood protection due to inadequate consultations. During stakeholder consultation, some environmental and social concerns were reflected (see Annexes 9, 10 and 11). These are summarized as follows:

A. Environmental concerns

The following are some of the views of stakeholders on the environmental risks (See annex 3 and 4)

- Capacity limitation on implementing of IPM. No adequate trainings were given on the overall Environmental and Social Management issues,
- Lack of environmental and social safeguard specialist, responsible for overall environmental and social management of the project, at all level from federal up to woreda,
- deterioration of physical situation of big Government pesticide stores found in various part of the country, and
- Having limited non pest management options as required.

B. Social concern

- Some informants in the pastoralist and agro-pastoralists areas indicated the seriousness of the infestation on the pasture of their livestock and its effects that leads pastoralists into conflicts.
- reasons for the presence of conflicts in the pastoral, agro-pastoral and farming communities of Ethiopia are due to livelihoods, rangeland or pasture, unstable situation of the youth, and misinformation

10. References

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Annex 1: Integrated Pest Management Plan Section 7 and Section 8

Section 7. Ethiopia Emergency Locust Response Project IPMP

7.1. IPMP for EELRP

All assessment made at various steps were evaluated with existing new knowledge and practices (both indigenous and scientific). Once the evaluation of the assessment results have been made and analyzed, the main component (Plan) of the IPMP have been developed and documented as follows (See Table 5 below). Accordingly, this IPMP has been prepared for and to be implemented by the EELRP. Regions can develop their own IPMPs based on this comprehensive IPMP by adopting it according with their Regional condition, and level of responsibility and involvement.

IPMP Goals:

1. Total project intervention (pest prevention and control) area in ha: - **842, 000 hectares**
2. Total area planned to treat with pesticide spray: - **500,000 hectares**
 - i. Ground spray: 100,000 hectares, Amount of pesticide: - **100,000 lt.**
 - ii. Arial spray: 400,000 hectares, Amount of pesticide: - **400,000 lt.**
3. Total area planned to treat with non-pesticide:- **342,000 hectares**
4. Target:- **342,000 lt. Pesticide reduced by using non pesticide techniques on DL infestation**

Table 5. IPMP of Ethiopia Emergency Locust Response Project

S.N	Project intervention regions	Respective target and hot spot woredas	Agro-ecology Zone	Life cycle of DL vis-à-vis seasons	Areas in ha. Planned to treat with pesticides spray	Types and amount of pesticide planed to be sprayed	Areas in ha. Planned to treat with non-pesticides covered	Non pesticide intervention practiced (Biological, physical and agronomical), and traditional
1.	Afar	Chifra	Low Land	Mature, Nymph and immature adults	10076	Malathion	400	Identify night roosting sites, manually Chop and kill early in the morning settled swarm for mature and Immature. For hoppers dig trenches and cover soil on the top
		EWA	Low Land	Hopper	3000	Malathion, Chloropyrifos	200	Dig trenches the crossing hopper fall down inside and cover the soil and egg field expose eggs to radiation.
		Mile	Low Land	Immature	4000	Malathion, Chloropyrifos	100	Identify night roosting sites, manually Chop and kill early in the morning settled swarm for mature and Immature.
		Kuri, Bidu	Desert	Immature	2000	Malathion	100	Chase specific distance and manually kill settled swarm early in the morning before flying
		Eldar, Erebiti	Desert	Immature	500	Chloropyrifos	100	Chase specific distance and manually kill settled swarm early in the morning before flying
		Afdera, Asayita Dufti	Desert	Immature	700	Chloropyrifos	300	Chase specific distance and manually kill settled swarm early in the morning before flying
2.	Amhara-eastern	Worababu	Low Land	Mature	5000	Malathion	1000	Chase specific distance and manually kill settled swarm early in the morning before flying
		Bati	Low Land	Hopper	6551	Malathion	200	Chase specific distance and manually kill settled swarm early in the morning before flying
		Habru	Low Land	Immature	1000	Chloropyrifos	200	Chase specific distance and manually kill settled swarm early in the morning before flying

S.N	Project intervention regions	Respective target and hot spot woredas	Agro-ecology Zone	Life cycle of DL vis-à-vis seasons	Areas in ha. Planned to treat with pesticides spray	Types and amount of pesticide planed to be sprayed	Areas in ha. Planned to treat with non-pesticides covered	Non pesticide intervention practiced (Biological, physical and agronomical), and traditional
		Kobo	Low land	Immature	2000	Chloropyrifos		Chase specific distance and manually kill settled swarm early in the morning before flying
3.	Dire Dawa C. administration	Culster 1	Low Land	Mature	55	Malathion	12	Manually chop and kill
		Cluster 2	Low Land	Hopper	58	Malathion	10	Dig trenches on the marching direction and make the hopper fall down inside the hole and cover soil
4.	Oromiya-eastern and south eastern	Chineksan	Low Land	Immature	355	Chloropyrifos	20	Manually chop and kill
		Doba	Low Land	Mature	200	Chloropyrifos	100	Manually chop and kill
		Teltele	Low Land	Hopper	2000	Chloropyrifos	250	Dig trenches on the marching direction and make the hopper fall down inside the hole and cover soil
		Wachile	Low Land	Immature	1500	Chloropyrifos	300	Chase specific distance and manually kill settled swarm early in the morning before flying
5.	Somali	Erer	Low Land	Mature	1200	Malathion	120	Identify roosting site late afternoon and manually kill before flying
		Aysha, Adigala	Low Land	Hopper	600	Malathion	50	Dig trenches on the marching direction and make the hopper fall down inside the hole and cover soil
		Denbel, Awubare	Low Land	Immature	500	Malathion	100	Identify roosting site late afternoon and manually kill before flying
		Jijiga	Low Land	Mature	1000	Malathion	200	Identify roosting site late afternoon and manually kill before flying
6.	SNNP- low land woredas of the southern zones	Benatsemay	Low Land	Mature	80,000	Chloropyrifos	10,000	Identify roosting site late afternoon and manually kill before flying
		Male	Low Land	Hopper	6000	Chloropyrifos	200	Identify the marching direction and make the hopper fall down inside the hole and cover soil
		Karat	Low Land	Immature	12,000	Chloropyrifos	2000	Identify roosting site late afternoon and manually kill before flying

S.N	Project intervention regions	Respective target and hot spot woredas	Agro-ecology Zone	Life cycle of DL vis-à-vis seasons	Areas in ha. Planned to treat with pesticides spray	Types and amount of pesticide planed to be sprayed	Areas in ha. Planned to treat with non-pesticides covered	Non pesticide intervention practiced (Biological, physical and agronomical), and traditional
		Ale	Low Land	Mature	20,000	Chloropyrifos	3000	Identify roosting site late afternoon and manually kill before flying
7.	Tigray- eastern and southern lowlands	Raya Azebo	Low Land	Hopper	2500	Malathion	1500	Dig trenches on the marching direction and make the hopper fall down inside the hole and cover soil
		Raya Alamata	Low Land	Immature	450	Malathion	400	Identify roosting site late afternoon and manually kill before flying
		Gantaafishu	Low Land	Mature	300	Malathion	200	Identify roosting site late afternoon and manually kill before flying
		Hantalo	Low Land	Hopper	900	Malathion	100	Dig trenches on the marching direction and make the hopper fall down inside the hole and cover soil

The proposed actions for effective implementation of the IPMP are described here under Table 6.

Table 6. Action for the implementation of recommended strategies and activities of the IPMP

S/N	Activities	Detailed description of the activity	Period of implementation and frequency	Responsible body/Implementers	Estimated Budget/Cost ¹	Remark
I.	Capacity Building/Trainings					
1.1	Make a Panel discussions among Project coordinators and Key Governmental Ministries	Creating common ground and commitment with Project coordinators, Steering and Technical committees on the effective implementation of the Project's IPMP	End of June 2020 up to mid July 2020	MoA, DLERP		

¹ Refer Budget summary of Project PIM document and Section 9(budget Summary) of this document for not stated in the budget column. While those fixed budget in the column either clearly fixed for activity mentioned or those activities not budgeted in the PIM but proposed for effective implementation of the IPMP

1.2	A day long awareness raising, refreshment course and briefing workshops on IPM-Basics	Conducting Awareness raising workshops and refreshment course for Federal, Regional, Zonal, Woreda experts, Das and Scouts	End Jun – End July 2020	MoA, DLERP, Regal Bureau of agriculture and Regional Pastoral Development Bureau		
1.3	Conducting ToTs	ToT on best practice (FAO guidelines) of handling and disposal of pesticide; and locust biology and best control strategy for Federal and Regional Surveillance and control Team members	August up to September 2020	MoA, DLERP, Regal Bureau of agriculture and Regional Pastoral Development Bureau, Consultant		
1.4	Cascading ToTs at lower level	Cascading ToTs to Woreda Experts and Das	September up to October 2020	MoA, DLERP, Regal Bureau of agriculture and Regional Pastoral Development Bureau with lead contribution of ToT trainees		
1.5	Undertake basic research on non pesticide techniques	Assessing and come with mapping and documenting country wide best practices-Non pesticide control methods applying for all DL lifecycle stages	June up to September 2020	MoA and DLERP		
1.6	Research and trial on low toxic pesticides and biopesticides.	Research and trial on low toxic pesticides and biopesticides. Such as Fipronil (pesticide) or blanket application of <i>Metarhizium acridium</i> (biopesticide), and others suggested as low toxic in trial carried out locust prone countries.	July up to November 2020	MoA and DLERP		
II. Capacitating with Manpower						
2.1	At Federal level	Officially appoint the pest management specialist , who lead Desert Locust survey and control operation (Under project)	Up to June 30, 2020	MoA and DLERP		Allocated budget for monitoring and reporting
2.2	At Federal	Hire Environmental safeguard specialist	Up to June 30	MoA and DLERP		Allocated budget for monitoring and reporting
2.3	Regions	Officially appoint safeguard specialists from BoAs and/or Bureau of Pastoral	Up to June 30	MoA, DLERP and Regional Bureaus		Allocated budget for monitoring and reporting

		developments (trained or to be trained)				
2.5	Woredas	Officially appoint safeguard specialists from Agricultural offices and/or Pastoral development offices (trained or to be trained)	Up to June 30	Regional Bureaus and Woreda offices		Allocated budget for monitoring and reporting
III	Insuring Safe use, application, storage and disposal of pesticides containers					The training of safe use application, and etc have been covered in section 1.2 and 1.3 of this IPMP template
3.1	Provision of PPE (Set)	Provision of PPE (set) for about 30,000 people involved on DL pest control program	Spring (March – June 2020) 35% of the PPE has required Summer (June to September 2020) 40% of the PPE has required Winter (October 2020 to January 2021) 25% of the PPE has required	MoA, DLERP and FAO country office	6,000,000.00	As specified in the Project's PIM for specific provision of PPE
3.2	Ensuring storage handling system up to standard by improving and making maintenance for major pesticide stores including rain flood drainage system of these stores	Chemical store at National with more than 400,000lt capacity, in East Dire Dawa 100,000 lt, In Samara 100,000lt capacity, 100,000 lt in Jijiga, 50,000 lt capacity in Hawassa , 100,000lt capacity in Bishoftu, Kombolcha 100,000 lt Bahir Dar 100,000lt and Mekele 100,000 lt capacity and there are also medium storage in all zones in the country	Starting from June 2020	MoA, DLERP	40,000.00	New proposed activity
3.3	Disposal of Pesticide containers as per FAO guidelines	Collecting and transporting these containers to be reused or back to manufacturer (with in country) or recycling	In all operation periods	MoA, DLERP	10,000.00	New proposed activity
3.4	Disposal of pesticide	Based on best practices supported with FAO guidelines	When there is obsolete pesticide	MoA, DLERP		No disposal of pesticide will be carried on in the country- send to manufacturers

IV	Monitoring, Evaluation and reporting					
4.1	Assessment and monitoring of Status on human health and ecological features.	-Pre and post health examination for people involved in pesticide - Baseline unique Ecological feature assessment (before and after project interventions - Assessment of residual effect	In all operation and post operation periods	Project Implementing bodies from Woreda up to Federal level; and Environmental Protection organs from Woreda up to Federal level (EFCCC), MoH from Health centres up to Federal level		
4.2	Overall monitoring and reporting of the DL control program including the implementation of this IPMP	Monitoring and reporting will be carried out from kebele, Woreda up to Federal level	In all operation periods	Project Implementing bodies from Woreda up to Federal level; and Environmental Protection organs from Woreda up to Federal level		This part should be more or less much with this IPMP's monitoring plan specified on Table 7 of this document

7.2. Monitoring, Inspection and reporting arrangements for the IPMP

7.2.1. Monitoring

The term monitoring is used here for the collection, analysis, interpretation and dissemination of data on the effects (both intentional and unintentional) of operational locust control. This includes control efficacy, effects on human health, impact on non-target organisms and the presence of insecticide residues. The objective of monitoring is to identify what goes right in operational locust control, and what can be improved. Monitoring is therefore an essential element of a locust control campaign. It aims to optimize control, improve cost efficacy and minimize adverse side-effects on human health and the environment.

According to the FAO Desert Locust Guidelines No. 4 – control, there are three types of operational monitoring: rapid assessments (done by locust control teams), dedicated operational monitoring (carried out by special monitoring teams) and in-depth monitoring (executed by specialized research teams). These three types of monitoring differ by the activities that are carried out, the time span in which the work has to be done and the functional links to the control campaign organization.

What to be monitored on Locust control operation

The project has to follow the FAO “Desert Locust Guidelines No. 4 – control” procedures and requirements on monitoring in all DL control campaigns. The following are some among to be monitored:-

7.2.1.1. DL control operational monitoring areas

i. Monitoring human health

- **Occupational exposure.** Locust control staffs run the highest risk of being exposed to, and possibly poisoned by, insecticides. It is therefore important that insecticide exposure is regularly monitored.
- **External exposure.** External exposure to insecticides can be monitored using absorbent pads that are fixed, before insecticide spraying or handling, to certain parts of the body. The pads are stored after treatment in a refrigerator, transported to the laboratory, and analyzed for insecticide residues. If the pads are also fixed inside the protective clothing, the level of protection provided can be assessed too. A second method to assess external exposure is to mix a (fluorescent) tracer with the insecticide. Control staffs subsequently carry out handling and spraying as usual. The tracer can be visualized after the control operation (for fluorescent tracers this can be done at night, back at the camp, using a battery-powered UV light). This method is only qualitative, but is an effective way of demonstrating potentially hazardous control practices.
- **Internal exposure.** A commonly used indicator for organophosphate absorption is the depression of acetylcholinesterase (in red blood cells) and pseudocholinesterase (in blood plasma). This can be tested after taking a blood sample and subsequent analysis using a field test kit or in a specialized laboratory

ii. Monitoring ecological side-effects

One of the main constraints for ecological monitoring of Desert Locust control is that the exact location of the insecticide treatments will often only be known very shortly before spraying. Many spray targets are identified the evening before treatment, and sometimes only on the day itself. This means that pre-spray observations or sampling are generally impossible. As a result, the scope of the ecological monitoring that can be carried out is relatively limited.

Three approaches to operational ecological monitoring can generally be used in Desert Locust control: observations, measurements and experiments.

- **Observations.** Observations are (mostly) qualitative assessments of the direct impact of a treatment, e.g. fish kills, behavioral changes in birds, large bee mortality, etc.
- **Measurements.** Measurements are all quantitative assessments of the impact of an insecticide treatment. Normally this will be the difference in a biological parameter between untreated and treated plots.
- **Blood cholinesterase (ChE) depression** is an indicator of exposure to organophosphates and carbamates. It is a non-destructive technique, and useful for livestock. Brain ChE levels can only be measured in dead animals and may be used to confirm whether casualties were the result of spraying. Comparisons should be made with ChE levels in non-exposed organisms.

7.2.1.2. Monitoring on Implementation level of the IPMP

For successful implementation of the EELRP's IPMP, regular monitoring and evaluation of activities undertaken by all actors involved in DL control program should be undertaken. The focus of monitoring and evaluation will be to assess effectiveness of the IPMP and the capacity level in all actors involved in DL prevention and control program. More importantly, to assess the involvement of Farmer Groups and the extent to which IPM techniques are being adopted in crop production, and the economic benefits that farmers derive by adopting IPM techniques. It is also crucial to evaluate the prevailing trends in the benefits of reducing pesticide distribution; application and misuse (see Table 7).

Indicators that require regular monitoring and evaluation during the IPMP implementation include the following:

- The IPM capacity building performance at all level: Number of program staffs, scouts and farmers who have successfully received IPM training in IPM methods; evaluation of the training content, methodology and trainee response to training through feedback
- Numbers of Farmer Organizations that nominated members for IPM training; emphasize the number of women trained; assess Farmer Groups understanding of the importance of IPM for sustainable crop production
- Numbers of farmers who have adopted IPM practices as crop protection strategy in their crop production efforts; evaluate the rate of IPM adoption
- In how many crop production systems is applied IPM? Are the numbers increased and at what rate
- How has the adoption of IPM improved the plant protection and crop production derive by adopting IPM
- Economic benefits: decreased loss as a result of DL infestation and increased crop productivity due to adoption of IPM practices; increase in farm revenue resulting from adoption of IPM practices, compared with farmer conventional practices
- Social benefits: improvement in the health status of farmers
- Numbers of IPM networks operational and types of activities undertaken
- Extent to which pesticides are used for crop production
- Efficiency of pesticide use and handling and reduction in pesticide poisoning and environmental contamination
- Levels of reduction of pesticide use and reduction in pesticide poisoning and environmental contamination
- Overall assessment of activities that are going according to plans; activities that need improvements; and remedial actions required

Table 7. Summary of Monitoring and Evaluation of the implementation of IPMP

S/ N	Activities description	Verifiable indicators	Implication for pest and management	Time frame and Frequency	Responsible body	Estimated	Remark
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				of monitoring		Budget/ Cost ²	
1	Capacity Building/ Training						
1.1	Developing and dispatching of IPM Posters, Broachers and leaflets; and make Panel discussion for creating common ground and commitment with all actors	-No. of project coordinators and Steering committee members attended in the panel discussion -No. of Panel discussion carried out - No. of Posters, Broachers and leaflets prepared and dispatched to user -% in increasing the involvement or support of IAs and experts on overall IPM program of the country	- Platform for planning and implementation of IPMP established -Increasing the higher level IAs and experts in the involvement of the IPM implementation practices of the country	End of July 2020 – August 2020 (monitoring reports have to be produced)	MoA, DLERP		
1.2	Conducting a day long awareness raising workshops and refreshment course for Federal, Regional, Zonal, Woreda experts, DAs and Scouts on IPM-Basics	-No. of Expert, DAs and Scouts successfully attend in the workshops -No. of workshops conducted at various level	-Inclination towards IPM approach increased over the conventional approach (Using only pesticide as the only solution)	August 2020 (monitoring reports have to be produced)	MoA, DLERP, Regal Bureau of agriculture and Regional Pastoral Development Bureau		
1.3	Conducting ToTs on best practice (FAO guidelines) of handling and disposal of pesticide; and locust biology and best control strategy at Federal level- Regions will be participated	-No. of Expert successfully attend in the ToT program -% in increasing the involvement or support of IAs and experts on overall IPM program of the country	-Change in the conventional pest management approach to IPM occurred	October 2020 monitoring reports have to be produced)	MoA, DLERP, Regal Bureau of agriculture and Regional Pastoral Development Bureau,		
1.4	Cascading ToTs at lower level (Woreda experts, DA, Kebele leaders and KDCs	-No. of ToTs cascaded to woreda DAs and experts -No of participants attending in the trainings -% in increasing the involvement or support of experts, DA, Kebele Leaders and KDCs on overall IPM program of the country	-The idea and practice of the IPM approach and its implementation will be broadly accepted by farmers who are in the DL infestation prone areas	November 2020 monitoring reports have to be produced)	MoA, DLERP, Regal Bureau of agriculture and Regional Pastoral Development Bureau, and ToT trainees		
1.5	Undertake basic researches on	-No. of research -Outcome of the research which leads	-Enhancing the ability of using non pesticide techniques	October 2020 monitoring reports have	MoA, LERP and EFCCC		

² Refer Budget summary of Project PIM document and mainly Section 9 (budget Summary) of this document for budget column for monitoring.

	non-pesticide techniques	an increasing opportunity of using non pest side techniques	on the DL control throughout the country	to be produced)			
1.6	Research and trial on low toxic pesticides and biopesticides	-Outcome of the research which leads an increasing opportunity of using less toxic pesticides and biopesticides	-Enhancing the ability of using variety of less toxic pesticides and biopesticides on the DL control throughout the country	December 2020 monitoring reports have to be produced)	MoA, DLERP and EFCCC P		
II. Capacitating with Manpower							
2.1	At Federal level Officially appoint the pest management specialist, who lead Desert Locust survey and control operation (Under project)	- One expert assigned at federal level - Amount of budget allocated for monitoring and reporting (operational budget)	- Effective implementation of the IPMP realized	July 2020 monitoring reports have to be produced)	MoA and DLERP		
2.2	At Federal hire EHS specialist as Environmental safeguard specialist	- One expert assigned at federal level - Amount of budget allocated for monitoring and reporting (operational budget)	- Effective implementation of the IPMP realized	July 2020 monitoring reports have to be produced)	MoA and DLERP		
2.3	Regions Officially appoint safeguard specialists from BoAs and/or Bureau of Pastoral developments (trained or to be trained)	- One expert assigned at Regional level - Amount of budget allocated for monitoring and reporting (operational budget)	- Effective implementation of the IPMP realized	July 2020 monitoring reports have to be produced)	MoA, DLERP and Regional Bureaus		
2.4	Woredas Officially appoint safeguard specialists from Agricultural offices and/or Pastoral development offices (trained or to be trained)	- One expert assigned at Woreda level - Amount of budget allocated for monitoring and reporting (operational budget)	- Effective implementation of the IPMP realized	July 2020 monitoring reports have to be produced)30	Regional Bureaus and Woreda offices		
III. Insuring Safe use, application, storage and disposal of pesticides containers							
3.1	Provision of PPE (Set)	-No. of PPEs purchased and dispatched for a persons involved in DL control program in various seasons of Locust out breaking, that is Spring, Summer and Winter	-Safe working condition created	Spring Summer Winter	MoA, MOLSA, DLERP		
3.2	Ensuring storage handling system up to standard by improving and	-No. of pesticide stores renovated	-Safe pesticide handling created	Starting from June 2020	MoA, DLERP		

	making maintenance for major DL control pesticide stores						
3.3	Disposal of Pesticide containers as per FAO guidelines	-No container disposed % of containers returned back to manufacturer of the pesticide -% containers ordered for recycling	Safe and environmentally friendly pesticide container disposal method created	In all operation periods	MoA, DLERP, EFCCC		
3.4	Disposal of pesticide	% Amount of pesticide disposed	Safe and environmentally friendly obsolete pesticides disposal method created	When there is obsolete pesticide	MoA, LERP, EFCCC		
IV	Overall implementation of the IPMP						
4.1	Socioeconomic	-% increasing in productivity -% decreasing in crop loss as a result of pests -% increasing in income -% increasing farmers in adopting IPM	-Motivation and trust will be developed on the IPM	Through whole operation process	Woreda Agriculture office, DA and farmers		
4.2	environmental	-% decrease in complaining environmental pollution, especially surface water pollution -% decrease in complaining environmental pollution on unique ecological features	Motivation and trust will be developed on the IPM	Through whole operation and post operation process	Regional bureau Environmental protection organs, Woreda Agriculture office, DA		
4.3	Health and safety	-% decrease in human poisoning accident -% decreasing in complaining of health problem related with pesticide workers crop loss as a result of pests -% decrease on accident report related with pesticide	Motivation and trust will be developed on the IPM	Through whole operation process	Regional bureau of Environmental protection organs, Health centres, Labour and Social Affaire offices, Woreda Agriculture office, DA		
4.4	Goal of the IPMP	-% hectares Land covered using non pesticide DL control -% Lt. pesticide decreased for the application of DL control	Measuring the effectiveness and weakness of the IPMP and lesson learned for further strengthening of the system	Through whole operation process	MoA, DLERP, EFCCC, Regions and Woreda offices, DA and farmers		

V.	Reporting						
5.1	Overall monitoring and reporting of the DL control program including the implementation of this IPMP	-Address all issues in reporting format as stated in ESMF -Timely report to the relevant organs as stated in the ESMF	Creating best communication mechanism through bottom up approach so as to facilitate timely decision-making processes enhanced.	Monthly, Quarterly and annual report of IPMP reports and monitoring reports	MoA, DLERP, Regions and Woredas EFCCC		

7.2.2. Reporting

Reporting mechanisms of the implementation of IPMP (Monthly, quarterly, and annual Reports) should be in line with ESMF. The quarter and annual year implementation report of the IPMP and monitoring reports will be part and parcel of the overall ESMF report. Hence the overall implementation of the IPMP should be captured in the overall reporting format of the ESMF implementation and monitoring report.

Section 8. Training and Capacity Building

This section will describe the overall training and capacity building requirement for effective implementation of the IPMP in particular and ESMF in general based on training and capacity building need assessment made on the preparation of this document. Accordingly, gaps on human resource, training/Awareness, and research have been identified and possible measures also proposed.

8.1. Capacity Building on Training and Research

Capacity building in terms of training/Awareness raising and research are discussed in this section. Even though the capacity building efforts were made before, in order to build common ground and creating commitment at all level, some training needs and research areas have been identified for effective implementation of this IPMP as integral part of the Project's ESMF.

A. Proposed awareness raising and Trainings

The following are the proposed awareness raising for large community and trainings for technicians and experts dealing on project activities:

- Make a Panel discussions among Project coordinators and Key Governmental Ministries
- Sensitization and awareness raising workshops for large community members on the overall project activities including IPM basics and importance
- ToT on safe use, application and disposal of pesticide for Federal and Regional Experts
- Cascading this ToT to Zonal, Woreda experts and DAs
- ToT on IPMP/ESMF and relevant Environmental and social frameworks, plans and instruments for Federal and Regions appointed safeguard specialists, relevant technical staff and regulatory body (respective environmental organs)
- Cascading this ToT to Zonal, Woreda experts and DAs
- Other trainings as required

B. Proposed Research Areas

The following are the proposed research areas which has been required for effective implementation of the IPM of this project.

- assessing and come with mapping and documenting country wide best practices- Non pesticide control methods applying for all DL lifecycle stages,
- Research and trial on low toxic pesticides and biopesticides. Such as Fipronil (pesticide) or blanket application of Metarhizium acridium (biopesticide), and others suggested as low toxic in trial carried out elsewhere in locust prone countries.

8.2. Institutional Arrangements and Capacity Building

As it was discussed above the implementation of the EELRP and the IPMP will take place through the existing government structures from the federal to the local or community level institutions. This structure has been believed strong and having best experience on DL control of the country. However, there are some areas need qualified personnel's for the overall implementation of the ESMF and IPM. These are the following among others.

- Hire, as a consultant, pest management specialist , who lead the Desert Locust survey and control operation (Under project),
- Hire ESHS specialist Under Project) working as Environmental and Social Safeguard Specialist,
- At Regional level officially appoint safeguard specialists from BoAs and/or Bureau of Pastoral community developments (trained or to be trained) and allocate operational budget
- At Woreda level officially appoint safeguard specialists from Agricultural offices and/or Pastoral development offices (trained or to be trained) and allocate operational budget .

Annex 2. Subproject Screening Forms for spraying subprojects/activities

Subproject Screening Form 1: EELRP subprojects/Activities

Region: Zone.....Woreda:

Kebele: Community:

Subproject Name: Ground and Arial Spraying

Activities:

DA and Subject matter specialists Team (Names):

Step (i) Subprojects Ineligible

Will the sub-project/activity directly:	Yes	No
Activities that may cause long term, permanent and/or irreversible (e.g. loss of major natural habitat) impacts		
Activities that have high probability of causing serious adverse effects to human health and/or the environment other than during spray to control pests		
Activities that may have significant adverse social impacts and may give rise to significant social conflict		
Activities that may affect lands or rights of indigenous people or other vulnerable minorities		
Activities that may involve permanent resettlement or land acquisition or impacts on cultural heritage		
Activities that may cause long term, permanent and/or irreversible (e.g. loss of major natural habitat) impacts		
Activities that have high probability of causing serious adverse effects to human health and/or the environment other than during spray to control pests		
Activities that may have significant adverse social impacts and may give rise to significant social conflict		
Activities that may affect lands or rights of indigenous people or other vulnerable minorities,		
Activities that may involve permanent resettlement or land acquisition or impacts on cultural heritage		

Step (ii) a: Subprojects Requiring Special Attention

Feature of Concern	Yes	No
Subproject/activities likely to use or spray pesticides near to protected areas		
Subproject/activities likely to use or spray pesticides near to natural habitat		
Subproject/activities likely to use or spray pesticides near to biodiversity hotspot areas		
Subproject/activities likely to use or spray pesticides near to water bodies such as ponds (which are very important and only alternative for domestic use of the locality)		
Subproject/activities likely to use or spray pesticides near to agronomically important areas- such as organic farms, export crops and vegetables		

b: Subprojects of Environmental and Social concern

Feature of Concern	Yes	No
Subproject/activities likely to use or spray pesticides near to protected areas		
Subproject/activities likely to use or spray pesticides near to natural habitat		
Subproject/activities likely to use or spray pesticides near to biodiversity hotspot areas		
Subproject/activities likely to use or spray pesticides near to water bodies such as ponds (which are very important and the only alternative for domestic use of the locality)		
Subproject/activities likely to use or spray pesticides near to agronomically important areas- such as organic farms, export crops and vegetables		
Risk of pesticide storage and handling		
Risk of pollution as a result of disposal of obsolete pesticide and containers		
Impact on health and safety of the community and workers		
Offsite impact of the Projects activities such as pesticide spraying		
Risk on livestock and bee keeping		

Step (iii) Subproject Screening

Feature of Concern	Potential for adverse impact				
	None	Low	Medium	High	Unknown
Subproject/activities likely to use or spray pesticides near to protected areas					
Subproject/activities likely to use or spray pesticides near to natural habitat					
Subproject/activities likely to use or spray pesticides near to biodiversity hotspot areas					
Subproject/activities likely to use or spray pesticides near to water bodies such as ponds (which are very important and the only alternative for domestic use of the locality)					
Subproject/activities likely to use or spray pesticides near to agronomically important areas- such as organic farms, export crops and vegetables					
Risk of pesticide storage and handling					
Risk of pollution as a result of disposal of obsolete pesticide and containers					
Impact on health and safety of the community and workers					
Offsite impact of the Projects activities such as pesticide spraying					
Risk on livestock and bee keeping					

Mitigating Measures Required

Potential Impacts	Mitigation Measure

Approved Unconditionally:
Mitigating measures

☐

Approved subject to Special Procedures and/or

☐

Notify to REPA as Subproject of Environmental Concern:

☐

Rejected:

☐

Screening conducted by (DA name):

Name..... Position:Signature:..... Date:.....

Screening reviewed by (Respective Environmental Protection Organ Environmentalist):

Name..... Position:Signature:..... Date:.....

Annex 3 Guideline for ESMP Preparation and Contents of ESMP

1. Guideline for ESMP Preparation

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.

i. Summary of the potential impacts of the proposed project: The predicted adverse environmental and social impacts for which mitigation is required should be identified and briefly summarized. Cross-referencing to the ESIA report or other documentation is recommended.

II. Description of the recommended mitigation measures: 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, project design and operating procedures that elaborate on the technical aspects of implementing the various measures.

III. Description of monitoring and auditing program: The monitoring and auditing programs should clearly indicate the linkages between impacts identified in the ESIA report, measurement indicators, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions.

IV. Institutional arrangements: Responsibilities for mitigation and monitoring should be clearly defined, including arrangements for co-ordination between the various actors responsible for mitigation.

V. Capacity Building and Training Programmes: To support timely and effective implementation of the project components and mitigation measures, an assessment and evaluation of the capability of environmental units and other institutions responsible for environmental management is necessary.

VI. Implementation schedule and reporting procedures: The timing, frequency and duration of mitigation measure should be specified in an implementation schedule, showing links with overall project implementation. Procedures to provide information on the progress and results of mitigation and monitoring measures should also be clearly specified.

VII. Cost estimates and sources of funds and allocation of responsibilities: 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, and factored into loan negotiations, etc.

Template for Environmental and social Management Plan ESMP Preparation

<i>Subproject activities</i>	<i>Potential Environmental and Social Impacts</i>	<i>Proposed Mitigation Measure(s) (Incl. legislation & regulations)</i>	<i>Responsible Institutions (Incl. enforcement & coordination)</i>	<i>When to implement? (Schedule for implementation of mitigation measures)</i>	<i>Cost Estimates</i>	<i>Comments (e.g. secondary impacts)</i>

<i>Subproject activities</i>	<i>Potential Environmental and Social Impacts</i>	<i>Proposed Mitigation Measure(s) (Incl. legislation & regulations)</i>	<i>Responsible Institutions (Incl. enforcement & coordination)</i>	<i>When to implement? (Schedule for implementation of mitigation measures)</i>	<i>Cost Estimates</i>	<i>Comments (e.g. secondary impacts)</i>

2. Contents of an Environmental and Social Management Plan (ESMP)

This is an action-oriented part of ESIA. The effective implementation of ESIA findings and recommendations hinges largely on the preparation and implementation of appropriate ESMP. It should thus include, at least, the following:

- outline of major positive and negative impacts,
- description of mitigation/enhancement measures,
- schedules of implementation,
- cost estimate,
- assign responsibility for implementation (by name or position of responsibility)
- surveillance and monitoring scheme with defined performance benchmarks and indicators,
- contingency plans, impact management strategy and response plans, where necessary
- attachment of environmental contract for the implementation of ESMP as the case may be,
- any institutional and capacity building requirements,
- Briefly present the planned community environmental management project (s) where necessary.

Annex 4. Format/contents of an ESIS/ESIA report

1. Executive Summary

This is the first part of the report that most people will read. The summary should provide a brief and accurate overview of the report in non-technical and simple language, in particular highlighting the main findings and recommendations. A two or three page summary should be written containing the following:

- Title and location of the proposed undertaking
- Name of the proponent and contact
- Name of the consultancy agency
- A brief outline of the proposal
- Results of public consultation
- Alternatives considered
- Major impacts and their Significance
- Mitigation measure/compensation
- The way forward-Environmental and Social Management Plan

2. Introduction

This section gives overview of the projection conception and the necessity of carrying-out an ESIA. It discusses:

- Background – how the project was conceived, who the developer is, involved cost, financing of the project and ESIA consultant, etc.
- Objectives of ESIA
- Methodology
- Boundaries of ESIA study
- Duration of ESIA study

3. Project Background, Description and Alternatives

This is a more detailed description of the proposal including any reasonable alternatives. A do nothing alternative should also be considered with a view of foregone loss of the expected benefits and future of the environment. Attention should be paid to the major differences between the alternatives. This section of the report should explain:

- The status of the proposal in the project cycle such as pre-feasibility, feasibility, detailed engineering design etc
- A description of plans/designs and implementation strategies used for impacts forecast and management measures
- The requirements for raw materials e.g. water, energy, equipment etc.
- The planned operational characteristics, its uses, process, products etc.
- Visual aids such as appropriate maps, tables, flow diagrams and photographs
- A comparison of proposal options such as size, sitting, technology layout, energy sources, source of raw materials within existing economic, technical, environmental and social constraints
- A summary of the technical, economic and environmental features of the proposal.

4. Administrative, Legal and Policy requirements

Under this section applicable international, national and regional environmental legal and policy frameworks should be described in the context of the proposed action. Furthermore, administrative and institutional arrangement that will be required for implementation of the environmental management aspects of the proposed activities needs to be elaborated.

5. Approach to the study

The methodologies to be used for identifying, predicting and evaluating of the impacts (both positive and negative), alternatives analysis and design of ESMP are required to be described under this section. In describing the approach due consideration should be paid to its appropriateness.

6. Assumptions and /or Knowledge Gap

Reliability and quality of data to be collected regarding the proposed action might not be sound and conclusive enough. Under such circumstance it is important to indicate the gaps and uncertainties. The analyst is, therefore, required to clearly state the level of uncertainties by considering:

- reasons (constraints) for the incomplete nature and/or assumptions of information
- confidentiality of the information
- the implications of those gaps and assumptions for decision making
- proposals or suggestions to make up for the limitations.

7. Baseline Conditions

This elaborates the existing:

- Spatial, institutional and temporal boundaries
- Baseline conditions: biophysical, social, cultural, economic and land use
- Key trends and anticipated conditions, including prediction about the likely future environmental conditions in the absence of the proposed action.

8. Public concerns and views

A concise and complete statement of the nature, scope and results of public consultation is an important section of the report. These particulars are sometimes overlooked or aspects are insufficiently described. Depending on the provision made for public consultation, some or all of the following points should be included:

- Identification of interested and affected stakeholders
- Method(s) used to inform and involve them
- Analysis of views and concerns expressed
- How these were taken into account
- Issues remaining to be resolved

9. Potential impacts identification and analysis

This section details the actual impacts identification, prediction, and analysis. It includes description of how beneficial/adverse impacts and direct/indirect are expected to occur. The report should discuss about:

- Spatial, Institutional and temporal boundaries adopted for the various aspects of the study
- Condition of the biophysical, socio-economic environment as well as trends and the anticipated future environmental conditions
- Environmentally sensitive areas of special or unique values (such as scientific, socio-economic, cultural, visual etc)
- Causes and/or sources of the impacts
- Methods, techniques and standards used to predict or forecast impacts, of how environmental data was gathered
- Uncertainties in predicting impacts
- Significance of the different impacts; and
- Severity of impact (e.g. magnitude, duration, location, direction, reversibility etc.) as well as the likelihood of its occurrence
- Quantitative or qualitative assessment of the costs of different impacts
- Possible measures for avoiding or mitigating the effects of significant impacts
- Clear statement of residual impacts, i.e. those, which cannot be avoided or minimized, and recommendation for how these shall be managed.

10. Mitigation and enhancement measures

The focus of this section is to suggest appropriate measures in order to avoid and/or minimize negative and enhance positive impacts of the proposed actions. Mitigation and enhancement measures should be project specific and take in to account various issues such as cost, views of stakeholders involved in the ESIA process.

The main types of mitigation and enhancement approaches which need due considerations are the following:

- Prevention or minimization of impacts,
- Elimination or reduction of adverse impacts,
- Rehabilitation or restoration of environmental damage,
- Compensation to environmental and social damage,
- Enhancement of beneficial impacts,
- Consideration of cost and benefit scenarios of recommended measures,
- Appropriateness and cost effectiveness of preferred measures,
- Appropriateness of the technology used and the level of skill required to operate or maintain the technology, etc.

11. Environmental and social Management Plan (ESMP)

This is an action-oriented part of ESIA. The effective implementation of ESIA findings and recommendations hinges largely on the preparation and implementation of appropriate ESMP. It should thus include, at least, the following:

- outline of major positive and negative impacts,
- description of mitigation/enhancement measures,
- schedules of implementation,
- cost estimate,
- assign responsibility for implementation (by name or position of responsibility)
- surveillance and monitoring scheme with defined performance benchmarks and indicators,
- contingency plans, impact management strategy and response plans, where necessary
- attachment of environmental contract for the implementation of ESMP as the case may be,
- any institutional and capacity building requirements,
- Briefly present the planned community environmental management project (s) where necessary.

12.Environmental and Social Monitoring and Auditing

This section outlines the mechanisms for checking environmental performance during the operational life of the project; so it ensures effective implementation of ESMP. This presents:

- The benchmarks for monitoring program to assess performance,
- An opportunity to review the Environmental and Social Management Plan (E&SMP) to take into account emerging issues/impacts,
- Outlines mechanisms for checking the environmental performance of the project,
- Monitoring schedule,
- Involvement of external experts for internal audits,
- Internal capacity building,
-

13. Conclusions and Recommendations

This section should clearly and concisely indicates the critical justification, which is relevant to the decision-making. It should also highlight the key conditions of implementation.

14. Appendices

These are separate documents to be used as references for the reviewers. They enable reviewers to reach at appropriate decision making. Examples of documents that may be provided as appendices are:

- detailed technical reports,
- site maps and flow charts

Annex 5. Contents of an Environmental and Social Monitoring Report

The following items should appear in a monitoring report:

- Brief description of the project
- Purpose for monitoring
- Phase of the project
- Parameter/indicator (measurement and units)
- Frequency
- Standard level or norm
- Name and capacity of the person doing/reporting the monitoring
- Costs for monitoring
- Interpretation of the data
- Comment on the data

For monitoring to be effective, simple observations and reporting particularly from local people should be valued and taken into consideration. Verification of such observations by the developer should follow.

The Monitoring Plan should be prepared as part of the Environmental and Social Management Plan (ESMP) to mitigate and monitor the impacts of the proposed project. A budget for the monitoring plan needs to be drawn up and the resources and personnel necessary to carry them out should be specified in the ESMP.

Annex 6. Contents of an Environmental and Social Audit Report

An audit report must be prepared and submitted to the competent agency for review. The audit report should at least have the following suggested contents:

- Executive summary;
- Project's current status information;
- Audit objectives and scope;
- Audit protocol, criteria and methodology used;
- Findings and Observations;
- Description of key issues including the discovered project strengths and weaknesses;
- Recommended actions;
- Conclusions; List of document used/cited as references;
- Appendices (photographs, future Plan of Action, consultancy, list of stakeholders consulted, etc.)

Reviews and Verification of Audit Report

Competent Agency or delegated specialist review team shall conduct an environmental audit review in relation to accuracy and coverage of key issues. The reviewer shall ensure that in the report:

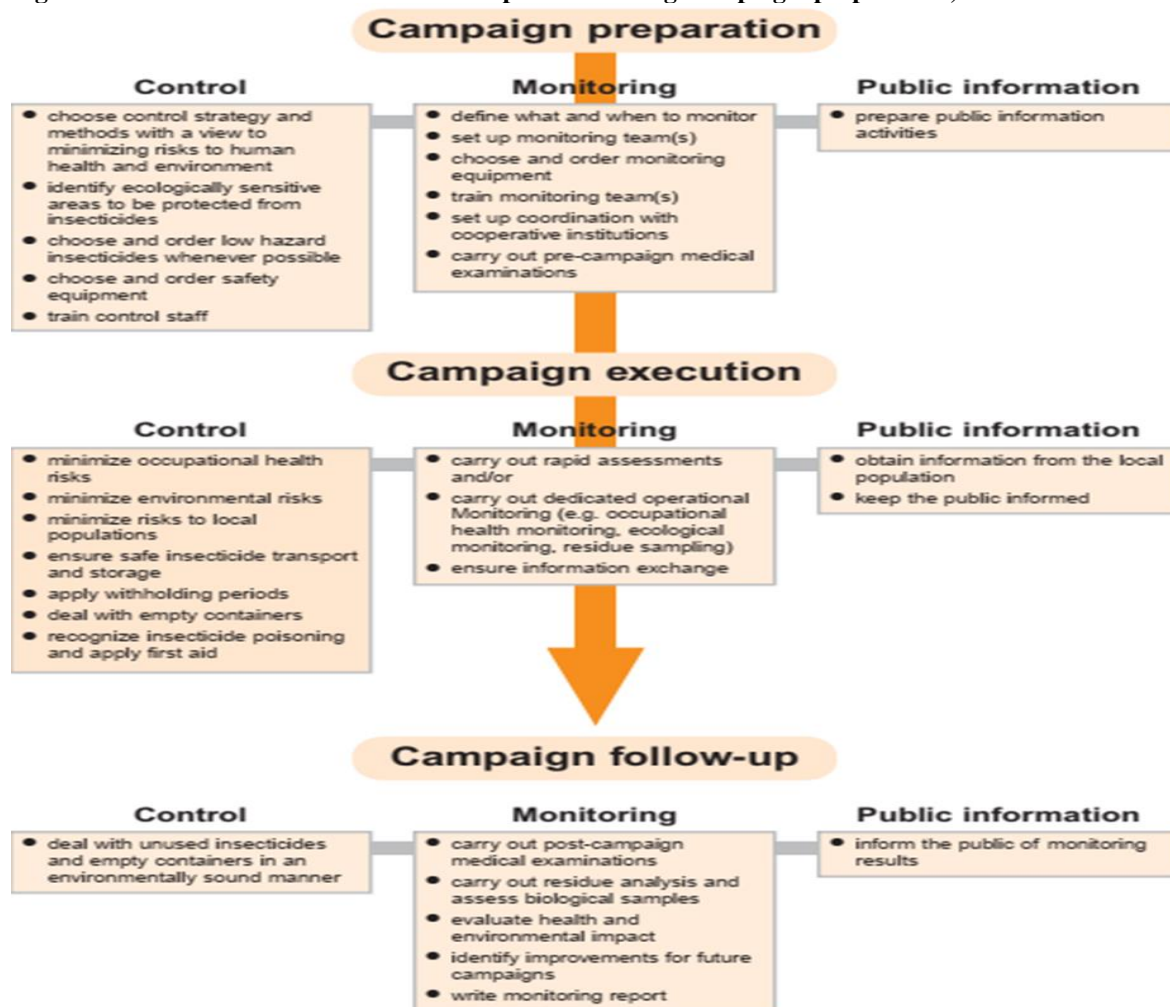
- Comparison between the existing and the predicted impacts in the ESIS is made;
- Evaluation of the implementation and effectiveness of the mitigation measures recommended in the ESMP is done;
- Appropriate recommendations for remedial measures are made.

The review team may make physical inspection and stakeholders' consultations in order to verify the contents of the audit review. Beside physical inspection, the proponent shall be invited for clarification and discussion.

After the review, it is the responsibility of competent agency to provide a feedback to Proponent on the environmental and social performances of the project in relation to ESMP. The developer should take to address issues raised in the audit report.

Annex 7: Additional FAO guidance Figures for further reference

Figure 1. Element of the risk reduction process during campaign preparation, execution and follow up



Furthermore, insecticides can have a broad impact on many aspects of life and ecosystems. Effects on ambient conditions such as the incremental contribution of pollutant emissions in an air shed, increases in pollutant concentrations in a water body or in the soil, Loss of biodiversity (Death of plant, wildlife, and microorganisms), are possible cumulative risks and impacts of insecticide use. An appropriate approach should be developed to protect human health and the environment from risks associated with pesticide use. This includes protection of pesticide users, consumers, the public, livestock, wildlife, water bodies, etc. A table showing some examples of impact of pesticides and a diagrammatic illustration of **risk of locust control insecticides to non-target organisms** is provided below.

Some examples of the impact of insecticides on:	
● Agriculture	- mortality of natural enemies of pests - insecticide residues in crops - reduced pollination
● Fisheries	- mortality of fish and shrimp
● Animal husbandry	- insecticide residues in meat and milk - reduction of honey and wax production
● Surface and ground water	- pollution, causing (temporary) reduced availability of drinking-water
● Biodiversity	- reduction of important species for medicine, agriculture, fisheries or animal husbandry - reduction of tourism

Figure 2: Indicative risk of locust control insecticides to non-target organisms

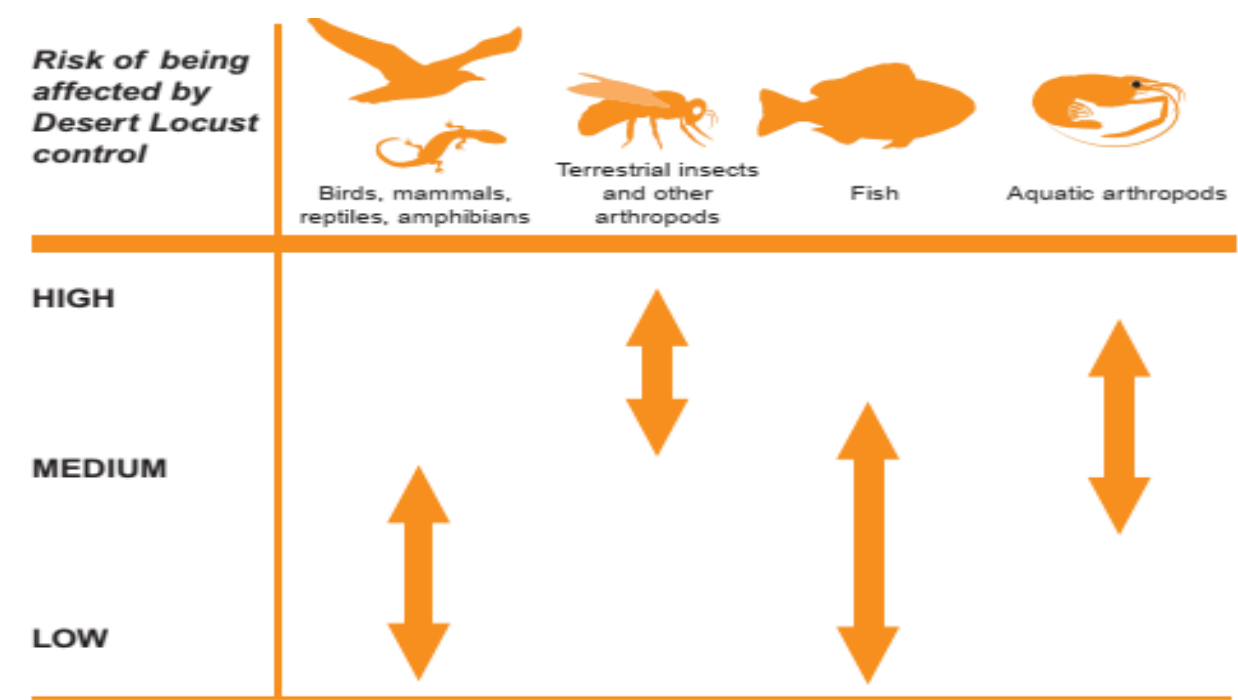
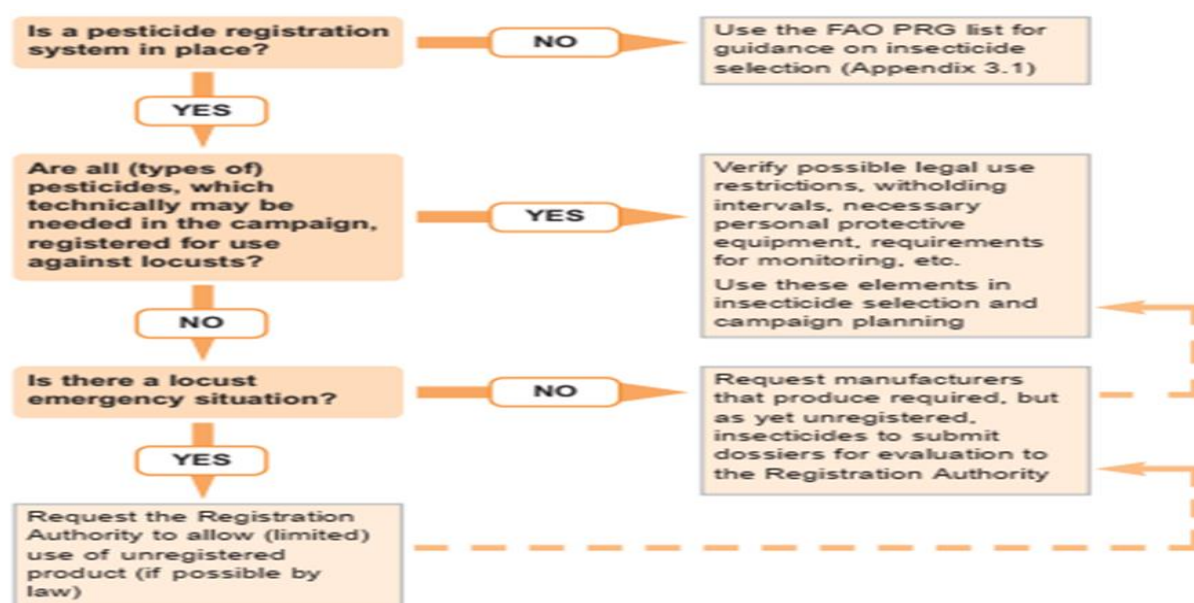
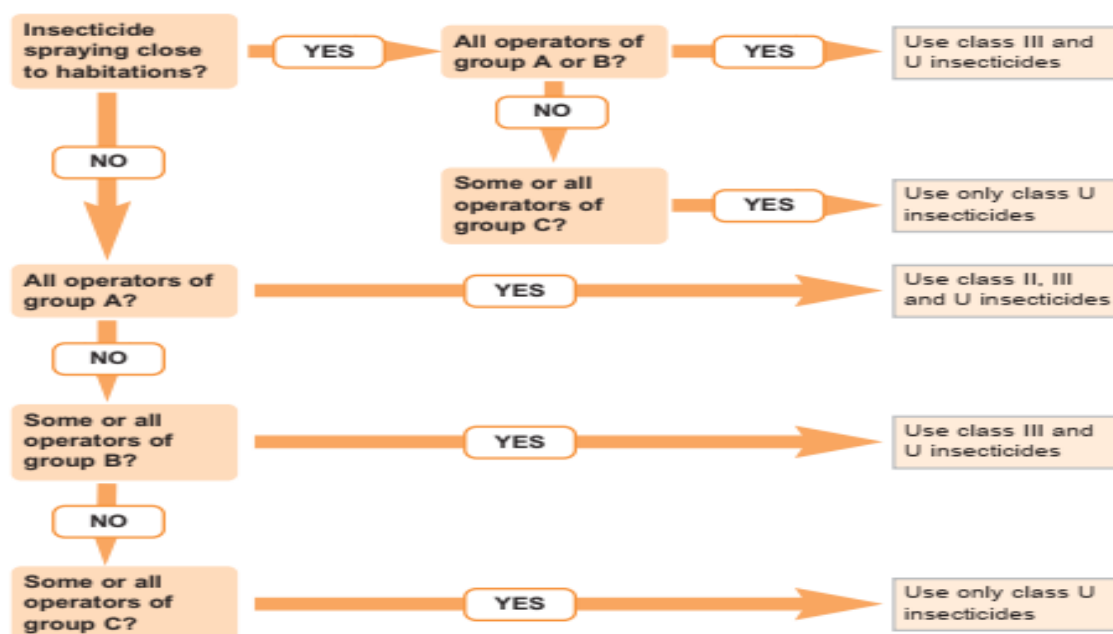


Figure 3. Decision scheme to check whether actions are needed for the registration of products in your campaign



Tip: because pesticide registration authorities rarely receive the evaluation reports of the FAO Pesticide Referee Group, the locust unit should transmit a copy to them, so it can be used in the registration process of new insecticides for locust control.

Figure 4 Indicative decision schemes for the selection of locust control insecticides, based on human health criteria.



Note: operator group codes as in table on opposite page

Tip: for insecticides or formulations that are not listed in Appendix 3.2, the WHO hazard classification can be determined using Appendix 3.3.

If the LD50 of the commercial formulation is known, use the table directly. If this is not the case, look up the LD50 of the active ingredient and then calculate the LD50 of the commercial formulation, using the formula provided .

LD50 values of active ingredients are listed in the most recent version of the WHO classification, which can be downloaded from the WHO Web site.

WHO recommended restrictions on the availability and use of pesticides

WHO hazard class	Availability and use restrictions	Operator code ¹
Ia Extremely hazardous	Only individually licensed operators	-- ²
Ib Highly hazardous	Well-trained, educated, strictly supervised operators	-- ³
II Moderately hazardous	Trained and supervised operators who are known to observe precautionary measures strictly prescribed	A
III Slightly hazardous	Trained operators who observe routine precautionary measures	B
U Unlikely to pose an acute hazard in normal use	General public, respecting standard general hygienic measures and observing instructions for use given on the label	C

Figure 5. Good standards for packaging, labeling and quality control should be followed when ordering insecticides. (See the *FAO Guidelines on tender procedures for the procurement of pesticides*, for more information)



Basic international standards for insecticide packaging are provided by the *United Nations Recommendations on the Transport of Dangerous Goods*. More specific ones are provided by the international transport organizations (e.g. International Air Transport Association (IATA) for air transport and the International Maritime Organization (IMO) for maritime transport).

International guidelines on good labelling practice for insecticide containers have been published by FAO



Pesticide specifications for many individual pesticide formulations are available from FAO

Tip: ask the supplier of the insecticide to provide a reasonable amount of extra labels/technical leaflets and material safety data sheets. These can be distributed among the control teams and the medical authorities in the locust control areas. Also, if insecticides have to be repackaged for some reason, the spare labels can be attached to the new containers.

Comparison of environmental and occupational health concerns between aerial and ground control

Aerial treatment

Environmental concerns

Increasing risk

- large areas sprayed
- higher probability of contaminating sensitive areas
- more uncontrolled drift

Reducing risk

- well-trained staff

Occupational health concerns

Increasing risk

- large quantities of pesticides handled

Reducing risk

- few staff involved
- well-trained staff
- protective equipment available
- fewer opportunities for exposure

Ground treatment

Increasing risk

- more temporary and inexperienced staff

Reducing risk

- small areas sprayed
- more precise applications
- less uncontrolled drift

Increasing risk

- many staff involved
- more inexperienced staff
- more opportunities for exposure
- less protective equipment

Reducing risk

- smaller amounts of pesticides involved

Note that there are often more environmental concerns with aerial treatments but more occupational health concerns for ground control.

Annex 8 : Summary Federal level Consultations with High level Technical Expert

S/N	Issues to be assed	Responses	Remark
I. Assessment on existing locust control using pesticides			
1.	As an organization, do you think IPM will have a room to reduce the application of pesticides? How? Please describe it with tangible evidences. N.B: Please attach published documents, if any.	Yes, IPM has a room to reduce pesticides. Integrated Locust control starts from early monitoring then early warning helps to control locust in small area. Again in most areas destruction of egg field, digging trenches and cover soil over hoppers, Mechanically killing settled swarms and use of bio pesticides reduce locust population density reduce amount of pesticides application.	
2.	Evaluate and discuss the nature of proposed pesticides for Locust control: Malathion 50% EC, Malathion 95% ULV, and Chlorpyrifos 24% ULV in terms toxicity & efficacy referring the national regulation and registry; FAO; and the WHO and other standards.	<ol style="list-style-type: none"> 1. Malathion and Chlorpyrifos belongs to Organophosphate group and the group is mammalian safe compared to Organochlorine 2. The group is non-persistent 3. Malathion is slightly hazardous and in WHO classification categorized in class III 4. Chlorpyrifos categorized in class II and moderately hazardous 5. Both are efficient if the target is well identified, located and time of application arranged based on the biology and behavior of locusts. Until now in most targets efficacy evaluated above 90% 6. Referring the national regulation and registration both are registered based on WHO toxicology classification. The regulation and registration allows class II, III and Unlikely hazardous groups 	
3.	As an organization do you have any pesticide alternatives which have less toxicity but high efficacy for locust control? If any, please list out	As far as pesticides toxicity is concerned these we are using now are classified as moderately and slightly hazardous in Who classification. However, Fipronil (pesticide) or blanket application of <i>Metarhizium acridium</i> (biopesticide), suggested as low toxic in trial carried out locust prone countries.	
4.	As an organization, do you have proper storage facilities? Where and how is it being properly stored in terms of bulk pesticide storage? Please describe it in detail	We have chemical store at National with more than 400,000lt capacity, in East Dire Dawa 100,000 lt, In Samara 100,000lt capacity, 100,000 lt in Jigjiga, 50,000 lt capacity in Hawassa , 100,000lt capacity in Bishoftu, Kombolcha 100,000 lt Bahir Dar 100,000lt and Mekele 100,000 lt capacity and there are also medium storage in all zones in the country However, the storage handling system and standard may need improvement	
5.	-As an organization do you have solid waste management plan? Especially pesticide containers. Please describe it in detail. - Do you have procedure and practices in disposal of expired or leftover pesticides? What standard experience of disposal of pesticide do you have? Please describe it in detail.	During the past obsolete pesticides disposal project implementation period solid waste management plan was prepared and the activities stated in the plan are collecting back empty drums and crush all containers and make ready for final disposal The country disposed huge pesticide quantity and we have good experience	

6.	Describe actual measures and precautionary measures being carried out not to pollute the natural habitat in general and non target species in particular during Aerial pesticide spraying activity	<p>We are using FAO standard procedure, the procedure has steps which are</p> <ol style="list-style-type: none"> 1. Identify the target (Locust) 2. Decide whether spray able or not 3. If spray able , decide type of chemical, tool, plate form 4. For safe spray discuss with community and delimit the spray target, record for corner GPS and aware the community about waiting period of the pesticide to keep away their domestic animals and human being for the decided period. Then the team evaluate efficacy and impacts if any 	
II. Assessment of traditional or agronomic practices of locust control			
1.	List out best traditional and agronomical practice of the locust control. And at which stage of Locust life cycle is these practices being effective. N.B: Please attach published documents, if any.	<p>Traditional or agronomic practices are:-</p> <ol style="list-style-type: none"> 1. Digging or destruct egg fields after egg laying of adults 2. Mechanical killing of settled adults before their flying early in the morning. This is applied to Immature and Mature adults 3. Digging trenches and guide or push all hoppers in the surrounding towards trenches and cover the soil in the top. This works for 1st, 2nd and 3rd instar hoppers 	
III. Assessment on existing institutional and capacity building efforts			
1.	- Describe capacity building efforts made related with locust control	<p>Desert Locust is a unique insect pest due to their ability to change behavior including their density and color. Desert Locust survey and management requires knowledge of its biology, behavior and ecology.</p> <p>Based on global and national existing situation forecast training given to different groups of experts and community locust scouts.</p> <ol style="list-style-type: none"> 1. TOT given to Desert Locust information, Survey and forecasting, Logistic and campaign management and control experts. 2. Training given to regional locust focal experts 3 Training given to Community village leaders, scouts, religious and community elders before, during and after control of locust outbreak. 	
2.	<p>- Describe capacity building efforts made with safe use and application of pesticides on locust control</p> <p>- Describe capacity building efforts made on the environmental and social management instruments such as ESMF, RPF and others</p> <p>- At Federal level, do you familiar with these environmental and social management instruments? If yes please describe some. If no please suggest some interventions</p>	<ol style="list-style-type: none"> 1. During capacity building safe use and handling of pesticides and application equipment management is the major covered theoretically and practically 2. EHS (Environmental and Health Standard) is a special topic and our locust officers trained by FAO/CRC 3. The country level in EHS during pest control operation evaluated by using software prepared by FAO. 3. We are not so much familiar with the instruments 	
3.	Describe Existing Federal level institutional arrangement on Locust control program/project	<p>The Federal level institutional arrangement in Locust control</p> <ol style="list-style-type: none"> 1. Ministry of Agriculture 2. Agriculture sector state Minister 3. Plant Health Regulatory Directorate General 4. Plant Protection Directorate 5. Migratory pest management case team 6. Desert Locust officer experts 7. Partners FAO, DLCO, WB, WFP, USAID etc 	

4.	<p>- Describe the institutional arrangement on Environmental, Social and Health and safety organs</p> <p>- At Federal level for this and related program and/or projects, do you have Environmental and Social safeguard specialist/s? please state the existing condition</p>	The Environmental and social safe guard program is part of locust operation and we have EHS specialist in Plant protection Directorate followed EHS training given by FAO in Egypt and specialized his M.Sc in this field in India	
IV. Assessment on communication means for surveillance of the occurrence of paste and control efforts			
1.	Describe technical support and communication means with Regions in terms of locust surveillance and control	<p>Federal level Plant protection Directorate experts give regular support during survey and also organize control operation in breeding seasons and outbreak. Communication is through report that is daily, weekly and monthly reports including monthly bulletin.</p> <p>Standard survey format is used , elocust tablets and elocust3m</p> <p>Telephone and email are also daily communication channel.</p>	
2.	Describe technical support and communication means with Special Woredas in terms of locust surveillance and control	Migratory pest is a trans-boundary pest management is organized and leaded by Federal Ministry. Region Bureaus are supporting the operation. The Ministry of Agriculture assign experts to the hotspot District and also region and zone offices involve in Campaign. Daily update prepared by using standard reporting format and woreda office daily communicate with the zones and directly with Plant protection Directorate in the Ministry.	
V. Assessment of technical support and communication with international organization dealing on locust control			
1.	Describe technical support and communication means with FAO in terms of locust surveillance and control	<p>FAO developed Desert locust Biology, Survey, Information Forecasting, Environmental and social impacts, campaign leading, control .</p> <p>FAO developed standard survey format and the Ministry communicate twice a week and monthly by monthly bulletin.</p> <p>FAO professionals technical support all front line countries during training, field operation, survey tools and control tools handling and management</p>	
2.	Describe technical support and communication means with East African Locust Control Program in terms of locust surveillance and control	Desert Locust Control Organization for Eastern Africa is one of the collaborators and Ethiopia is pioneer member of the organization. The experts of DLCO-EA carry out survey and support field experts and also deploy spray aircraft.	
VI. Stakeholders environmental and social concerns of this project			
1.	- List out all environmental and social concerns of all stakeholders at Federal level (implementing agencies, Environmental Organs, project affected persons and beneficiaries) related with this project	<ol style="list-style-type: none"> 1. MoA 2. WB, FAO, DLCO-EA 3. Ministry of Health 	
VII. Recommendations			
1.	Please forward your recommendations to be used as an input for realizing this project's (Project Development Objective) PDO and sustainable development. With emphasis of Environmental and Social management of this project		

Annex 9. Questions Related to Environmental Issues for KII (Federal Levels Stakeholders)

S/N	Issues to be assessed	responses	Remark
I. Assessment on existing locust control using pesticides			
1.	As an organization, do you think IPM will have a room to application of pesticides? How? Please describe available evidences. N.B: Please attach published documents, if any.	<i>The key informant from MOA said that, IPM will definitely reduce chemical use for it deals with cultural practices and other methods that reduce pest which is good agronomic practice. The key informant also raised that though they have a certain level of toxicity these pesticides are lethal dose limited for desert locust.</i>	
2.	Evaluate and discuss the nature of proposed pesticides for Locust control: Malathion 50% EC, Malathion 95% ULV, and Chlorpyrifos 24% ULV in terms toxicity & efficacy referring the national regulation and registry; FAO; and the WHO and other standards.	<i>The Key informant explained that the effectiveness of the proposed pesticides for Locust control: Malathion 50% EC, Malathion 95% ULV, and Chlorpyrifos 24% ULV when operated manually it is effectiveness is between 94-96% and when sprayed with aircraft it about 90%. On average its effectively is about 95%.</i> <i>Regarding toxicity he claimed that first of all the use of chemical should be and is a last resort, when it is difficult to control with cultural practices. Apart from that these chemicals are toxic to a certain level. The natal dose for killing locusts. Their toxicity can be reduced through the use of appropriate PPE and following good spraying practice taking into consideration wind direction, time, and the characteristics of the locust</i>	
3.	As an organization do you have any pesticide alternatives which have less toxicity but high efficacy for locust control? If any, please list out	<i>There are no alternative pesticides apart from these pesticides</i>	
4.	As an organization, do you have proper storage facilities? Where and how is it being properly stored in terms of bulk pesticide storage? Please describe it in detail	<i>The key informant confirmed that the project will be using the existing pesticides storage in the target mainly Arba Minch airport, Bale Robe airport, Jig Jiga airports and Borena Tele Tele airport. This storage are meant for chemicals storage and is guarded to avoid local people exposure to the insecticides. In terms of distance from the community the storage are well situated.</i> <i>One key informant said, we have chemical store at National with more than 400,000lt capacity, in East Dire Dawa 100,000 lt, In Samara 100,000lt capacity, 100,000 lt in Jigjiga, 50,000 lt capacity in Hawassa , 100,000lt capacity in Bishoftu, Kombolcha 100,000 lt Bahir Dar 100,000lt and Mekele 100,000 lt capacity and there are also medium storage in all zones in the country However, the storage handling system and standard may need improvement</i>	
5.	-As an organization do you have solid waste management plan. Especially pesticide containers. Please describe it in detail. - Do you have procedure and practices in disposal of expired or leftover pesticides? What standard experience of disposal of pesticide do you have? Please describe it in detail.	<i>Previously there was system in which empty containers collected from sites and sent back to Kaliti from all over the country where it is crushed using dram crusher. However, this time the dram crusher is not functioning as a result currently being done with regard to container is collection and transporting back to Kaliti site and where it is stored. .</i> <i>The key informant confirmed that we have no clear articulated procedure and practices in disposal of expired or leftover pesticides and this is the problem as country as there expired chemicals</i>	

		<i>disposing mechanisms are not available in the country. But disposal of expired or leftover pesticides has been done with the support of development partners mainly FAO. He also added that, search for financing/funding is on progress to dispose the remaining expired pesticides.</i>	
6.	Describe actual measures and precautionary measures being carried out not to pollute the natural habitat in general and non-target species in particular during Arial pesticide spraying activity	<p><i>Before every mission the community are asked questions which include: do you know this?, What is it?, what is the impact on you?, what do you want as to do? And then they ask for intervention then the pesticide formulated for locust will be identified with natal dosage for killing the desert locust. Then the community will get information awareness creation and sensitization is carried out about the purpose of the spraying and the impact it has on them and their family, on water, etc. the community are asked where they drink water from? Beside the community are told to cover water. If the there are water bodies and other and non-target species the spray won't be carried out until they are out of that sensitive area. Meanwhile the desert locust will be chased so as to protect the crops, pasture, and plants from being damaged by the desert locust. After chasing them to non-sensitive area the spray will be carried out either in area where they spent the night in the morning.</i></p> <p><i>In addition, the spray is carried out taking into consideration factors such as wind direction, topography, water body, village, and schools are not within the range of the spraying area. Besides, buffer zone is defined.</i></p>	
II. Assessment of traditional or agronomic practices of locust control			
1.	- List out best traditional and agronomical practice of the locust control. And at which stage of Locust life cycle is these practices being effective. N.B: Please attach published documents, if any.	<p><i>The federal key informant reported Various cultural methods made use to control desert locust. For instance, when the locust lay their eggs the area is ploughed so that to crush their eggs (this is done during the egg stage before hatching). The other practice is hitting with stick (locusts are cold blooded insects, as a result they are inactive from min-night to the sun rise. They feel the hot after 1-2 hours and their body relax as their limb is full of fat. Hence, they start moving after their body relaxed with the sun, mainly their limb). This makes it simple for hitting with stick as they cannot escape during this time). The other method is using smoke and collecting with suck and kill and digging hole and bury them).</i></p> <p><i>The other key informant response on traditional or agronomic practices are:-</i></p> <ol style="list-style-type: none"> <i>1. Digging or destruct egg fields after egg laying of adults</i> <i>2. Mechanical killing of settled adults before their flying early in the morning. This is applied to Immature and Mature adults</i> <i>3. Digging trenches and guide or push all hoppers in the surrounding towards trenches and cover the soil in the top. This works for 1st, 2nd and 3rd instar hoppers</i> 	

4.	<p>- Describe the institutional arrangement on Environmental, Social and Health and safety organs</p> <p>- At Federal level for this and related program and/or projects, do you have Environmental and Social safeguard specialist/s? please state the existing condition</p>	<p><i>Environment Forest Climate Change Commission and MoLSA</i></p> <p><i>Currently we do not have ESSSSs hired for this project, but the AGP safeguard specialists are supporting this project. But the project in the process of hiring ESSSS for this project.</i></p>	
IV. Assessment on communication means for surveillance of the occurrence of paste and control efforts			
1.	Describe technical support and communication means with Regions in terms of locust surveillance and control	<p><i>According to the key informant the technical assistance provided to the region on different areas including resources, on survey and surveillance, identifying, treatment and control of desert locust. He also confirmed that they are also in regular communications with regions in provision of early warning and control support the communications channel used include email, and RAMSAS and telephone, letter. However, The tablet used for RAMSEs are limited to federal and regions such as Afar, Somale, and Oromia regions.</i></p>	
2.	Describe technical support and communication means with Special Woredas in terms of locust surveillance and control	<p>Assistance provided including resources, on survey and surveillance, identifying, treatment and control of desert locust. He also confirmed that they are also in regular communications through regions in provision of early warning and control support the communications channel used include email, telephone, and letter.</p>	
V. Assessment of technical support and communication with international organization dealing on locust control			
1.	Describe technical support and communication means with FAO in terms of locust surveillance and control	<p>FAO is very much supporting us through provision of information about the desert Locust and provision early warning and resources (pesticides) to control the desert locust. We are also in regular communications with FAO in terms of surveillance and control the communications channel used include email, The FAO/DCCO RAMSAS Inter locust interlinked, Elocust software and telephone and letter.</p>	
2.	Describe technical support and communication means with East African Locust Control Program in terms of locust surveillance and control	<p>Where the desert locust, its stage, its distribution and direction. The communication channels include Email, information exchange and software elocust M3(recent version)</p>	
VI. Stakeholders environmental and social concerns of this project			
1.	- List out all environmental and social concerns of all stakeholders at Federal level (implementing agencies, environmental organs, project affected persons and beneficiaries) related with this project	<p><i>Pollution of the environment if the necessary precautionary measures are not taken; crop damage, economic losses, health problem on the sprayers and other operational staffs are among the impacts mentioned by the key informant.</i></p>	
VII. Recommendations			
1.	Please forward your recommendations to be used as an input for realizing this project's (Project Development Objective) PDO and sustainable development. With emphasis of Environmental and Social management of this project	<p><i>Continues communication is crucial for the campaign so community should be informed regularly and participated, operational staff should have appropriate quality and number of PPEs, and the necessary precautionary measure should be taken for environment, people, crops and pasture during spraying are among the recommendation provided by the federal key informant.</i></p>	

Annex 10. Questions Related to Environmental Issues for KII (Regional and Woreda Levels Stakeholders)

S/N	Issues to be assessed	responses	Remarks
I. Assessment on existing locust control using pesticides			
1.	As an organization with Regional or City Administration perspective, do you think IPM will have a room to reduce the application of pesticides? How? Please describe it with tangible evidences. N.B: Please attach published documents, if any.	<i>The key informant from regions agreed that IPM helps to reduce the use of chemical application through use of other methods including biological, mechanical, and manual which are not toxic. For instance, the use of cultural or traditional method of control make use of hitting with stick, smoking, making noise can reduce the use of the pesticides.</i> <i>Key informants from SNNP confirmed that IPM begins with attitude and learning the behavior of the desert locust. It helps to make use of agronomic practices which reduce the use of pesticides.</i>	
2.	Evaluate and discuss the nature of proposed pesticides for Locust control: Malathion 50% EC, Malathion 95% ULV, and Chlorpyrifos 24% ULV in terms toxicity & efficacy referring the national regulation and registry; FAO; and the WHO and other standards.	<i>The key informants from almost all regions agreed that if appropriately used it is effective. The key informant from Oromia further explained the effectiveness of the pesticides on average could range between 80-90%. He went on saying if the spray is conducted while the desert locusts are moving the effectiveness could be up to 50%. However, factors like wind direction, time of spray should be taken into account.</i> <i>Regarding the toxicity, the regional key informants confirmed that these pesticides are registered in the country and among the recommended by the FAO. Accordingly, their toxicity level is less compared other chemicals. In this regard key informant from Somali reported that the chemical can only remain on pasture, crops and plants etc limited time not more than 48 hours. In addition, key informant from Oromia said as the pesticides lists are annually renewed and are less toxic.</i> <i>Key informant from SNNP said that the Malathion 50% EC is water dilute and administered with equipment on the back of a person and less toxic. Whereas Malathion 95% ULV, and Chlorpyrifos 24% ULV are used for aircraft and vehicle mounted spray and are toxic. The latter two are not water dilute.</i>	
3.	As an organization do you have any pesticide alternatives which have less toxicity but high efficacy for locust control? If any, please list out	<i>No, the region have no mandate to do this. In such cases it is the federal government in charge of administer</i>	
4.	As an organization in your Region or City Administration, do you have proper storage facilities? Where and how is it being properly stored in terms of bulk pesticide storage? Please describe it in detail	<i>The key informants confirmed that the for this operation purpose we have not prepared pesticide storage center as the operation of spraying is coordinated and lead by the federal government. But, for the regional purpose the storage regional and zonal and woreda bureaus are used to store chemicals.</i> <i>Regarding storage the key informant from SNNP confirmed that there storage. However, some facilities are lacking such as showering and shelf.</i>	
5.	-As an organization, in your Region/City Administration do you have solid waste management plan? Especially pesticide containers. Please describe it in detail. - Do you have procedure and practices in disposal of expired or leftover pesticides? What standard experience of	<i>All most all regional key informants reported that, they have solid waste management system and institution for solid waste management their region and the city administration. However, is not realistic for pesticides container.</i> <i>The key informants said that there is a procedure, but not realistic. As per the report from the regional key informants the mandate for disposal of expired or leftover pesticides is not</i>	

	disposal of pesticide do you have? Please describe it in detail.	<p><i>regional governments`. The Federal government is responsible for their disposal.</i></p> <p><i>In this regard key informants from the Amhara region said that it is not their mandate to dispose expired or leftover pesticides.</i></p> <p><i>The key informant from SNNP in his part confirmed that they once it was disposed in Finland and the it is very expensive.</i></p>	
6.	Describe actual measures and precautionary measures being carried out not to pollute the natural habitat in general and non-target species in particular during Aerial pesticide spraying activity	<p><i>The regional key informants confirmed that the safe spray not to spray in sensitive areas rather to chase or use cultural method when feasible. Take in to account the wind direction, use of better spray equipment</i></p> <p><i>The key informant from Oromia also emphasized the taking GPS Coordinated in at night to effectively execute the operation.</i></p>	
II. Assessment of traditional or agronomic practices of locust control			
1.	- List out best traditional and agronomical practice of the locust control in your Region/ City Administration. And at which stage of Locust life cycle is these practices being effective. N.B: Please attach published documents, if any.	<p><i>Regarding traditional practices locust control practice the regional key informants confirmed that traditional method is one the most used methods. Among the traditional method mentioned by key informants include creation of noise using different material and disturbing the locusts, plough areas when eggs are lied to crush the eggs before hatching, hitting with stick hopper stage before it grow wings, digging trenches for hoppers to fall into or beating hoppers with sticks, smoke etc.</i></p>	
III. Assessment on existing institutional and capacity building efforts			
1.	- Describe capacity building efforts made related with locust control	<p><i>All regional key informants agreed that awareness creation for the community using different communication channels has been made so far. They also emphasize the role of community in the campaign to control and prevent the desert locust infestation. Previously mass mobilization of students, security staffs and the community was done; but currently due to COVID-19 and SOE the approach have been changed and is based on the direction of the command post. Accordingly, to reach the farmers and create awareness the use of communication channels such as community elderly, local Radio, devolving government structure from region to kebel and mainly development agents and extension workers in the locality are used.</i></p> <p><i>The woredas trained by the regions and zones. After receiving the necessary information or Training the zone will reach all their woredas and the woreda will reach all their kebelles and DAs and EAgricultural extension workers and community representatives (elders).</i></p> <p><i>A key informant from Harari reported that committees have been established from regional to kebele level and these committees at all level are responsible for awareness creation for the community.</i></p> <p><i>A key informant from Amahara also reported that the agricultural extension workers at the kebele level are providing information keeping their social distance from the audiences.</i></p>	
2.	- Describe capacity building efforts made with safe use and application of pesticides on locust control	<p><i>As per the regional key informants capacity building on safety and spraying of pesticides on the locusts control has been provided for spraying teams, farmers, scouts, experts and officials at different levels or sensitization campaigns for community/village leaders. The capacity building efforts made include provision of training on when, where, how and what</i></p>	

	<p>- Describe capacity building efforts made on the environmental and social management instruments such as ESMF, SA and others</p> <p>-At Regional/City Administration level, in your organization do you familiar with these environmental and social management instruments? If yes please describe some. If no please suggest some interventions</p>	<p><i>pesticide to use; factors to be considered during use of pesticide use (wind direction, topography, time, spraying , calibration of machines),proper Use of PPE; communication with community need to be taken before, during and after the spray are among efforts made.</i></p> <p><i>They raised that training cascaded from MoA to Regional, Regional to Zonal, Zonal to Woreda and DAs and kebele and to the community.</i></p> <p><i>During the training environmental, health and safety components are incorporated. They all confirmed they did not receive capacity building on instruments such as ESMF and SA for this campaign.</i></p> <p><i>The key informants confirmed that they are familiar with Environmental and social managements such as ESIA and RAP</i></p>	
3.	Describe Existing Regional/ City Administration level institutional arrangement on Locust control program/project	<i>Regional Bureau of Agriculture, Zonal Agricultural Bureau and Plant protection; Woreda Agricultural Bureaus, Kebele level DAs and Agricultural extension workers</i>	
4.	<p>- Describe the Regional/City Administration institutional arrangement on Environmental, Social and Health and safety organs</p> <p>- At Regional/City Administration level for this and related program and/or projects, do you have Environmental and Social safeguard specialist/s? please state the existing condition</p>	<p><i>As per the key informant interview the regional government has body in charge of environmental issues though the structure varies from one region to the other. Accordingly, some regions have Environment, Forest and Climate change Authority/Agency; While the other Environmental Protection and Land Use Administration Authority (EPLUA). With regard to the safety and social issues the Regional, zonal and woreda Bureau of Labor and Social Affairs are in charge of the social and safety issues. But at regional Agricultural Bureau or Zonal or Woreda have no Environmental and Social expert. Hence, the plant protection experts at the regions are also covering this vacuum.</i></p> <p><i>Regional key informants confirmed that they do not have Environmental and Social Safeguard Specialist</i></p>	
IV. Assessment on communication means for surveillance of the occurrence of paste and control efforts			
1.	Describe technical support and communication means with bottom up approach, that is with Woredas and Federal in terms of locust surveillance and control	<p><i>The regional key informants made clear that they provide training, including technical assistances to regional and woreda based on the Technical support they received from the Federal.</i></p> <p><i>They communication on the locust surveillance and control the woreda exchange information with the kebele and zonal staffs. Whereas Zonal exchanges information with the Woreda and Regional government and the region exchange information both bottom up from the zonal to Federal and top down from federal</i></p>	

		<p>to zones. The communication means email, telephone, letter and face to face etc</p> <p>They further explained that the communication also exists between the neighbouring regions and between zones and woredas with in a region. In this regard, the key informant from Tigray informed that they are coordinating and working with Afar region on areas where the desert locust, its stage, coverage and distribution. The key informant from Dire Dawa also confirmed that they are working with Somali and Oromia regions. Like with key informant from Harari also confirmed that they communicate with Oromia region.</p>	
2.	Describe technical support and communication means with your respective Special Woredas in terms of locust surveillance and control	See the above	
V. Assessment of technical support and communication with international organization dealing on locust control			
1.	Describe technical support and communication means with Federal Implementing Organ/s, FAO, and East African Locust Control Program, in terms of locust surveillance and control	<p>According to information from the regional key informants, the Federal government provide the regional governments with information on areas where the desert locust, its stage, coverage and distribution and the resources used to prevent and control desert locust. The communication channels used include email, and RAMSAS and telephone, letter. However, The tablet used for RAMSEs are limited to federal and regions such as Afar, Somale, and Oromia regions.</p>	
VI. Stakeholders environmental and social concerns of this project			
1.	- List out all environmental and social concerns of all stakeholders at Regional/City Administration level (implementing agencies, environmental organs, project affected persons and beneficiaries) related with this project	<p>The environmental impact mentioned by the key informants include environmental pollution if not well administered or potential spillage of pesticides, improper disposal of empty containers, potential lack of or less quality PPE, etc.</p> <p>The impacts include loss of yield, food insecurity and loss of means of their livelihood, migration of family including women and children in search of pasture for their livestock and employment away from home, and potential conflict on resources such as water and pasture mainly among pastoralists and agro-pastoralists.</p> <p>Key informant from Oromia also added the potential for family disintegration. Key informant from Amhara also raised the psychological impact of the infestation. The Key informant from Tigray in his part added the increase in labor coast to harvest as a result of demand raise and urgency to harvest to harvest.</p>	
VII. Concerns and Recommendations			
	Concerns	<p>The fact that the locust can travel 42km2/hour ;the desert locusts are beyond the controlling capacity of the regions; Budget and logistic(cars/transportation, motor bicke,) related challenges; favorable/conducive condition i.e, temperature and presence green vegetation, rain for desert locust; limited praying apparatus compared with the scale of invasion ;Climate change(which has made conducive environment for the locust); the Covid-19 pandemic; lack of spraying machine which fits to the topography of the country(e.g. Drone) in areas difficult for the aircraft; PPE compared to the massive force engaged in the campaign, pesticide impact on the health of operational staffs and community. Are among the concerns mentioned by key</p>	

		<i>informants; 100% substitution of all pesticides with ULV might affect the campaign; lack of elocust ;</i>	
1.	Please forward your recommendations to be used as an input for realizing this project's (Project Development Objective) PDO and sustainable development. With emphasis of Environmental and Social management of this project	<i>The key informants provided the following recommendations. These include Allocation of sufficient budget, ongoing information provision ,awareness creation and sensitization for all parties with different means; provision of appropriate quality and number of PPE; use of drones for topographic areas difficult to use air craft and traditional methods; making available vehicle, vehicle mount sprays, motor bikes; extensive media coverage with different language about the Desert locust infestation and scale and magnitude of damage; Information linkage between regions, zones and woredas and provision of latest information from WHO/DLCO; provision of training based gap and need assessment for experts, scouts and DA and extension workers;</i>	

Annex 11. List of professionals consulted with Telephone interview

Name	Organization and Title	Mobile number
Mr. Tamiru Kebede	MoA, Plant Protection Director(Delegated)	09200229951
Mr. Abebe Anegaw	Amahara Region, Crop Protection Expert	0918710715
Mr. Ketema Zeleke	Dire Dawa, Senior Pest Management Expert	0935649122
Mr. Amare	Benishangul Gumuz , Plant Protection Directorate Director	0917857831
Mr. Welega	Gambella , Crop Protection and Productive Directorate , Director	0922950982
Mr. Mulugeta Adugna	Harari Plant protection and Extension Directorate Director	0986336417
Mr. Mengistu Oli,	Oromia Region Expert	0991077207
Mr Abdi Adem	Somali Region PPD Director	0915769696
Mr. Mulualem Mersha	SNNPR, Arbaminche Plant Health Clinic	0911855240
Mr. Zenebe Keberet	Tigray Region, Pest Control Expert	0914749304
Dr.Mohammed Nure Mohammed, 0913080959	Afar Region , Plant protection Head	0913080959(not interviewed)
Mr. Mohamednure 0910660961	Afar Region , Expert	0910660961(not interviewed)