MINISTRY OF AGRICULTURE, LIVESTOCK, FISHERIES AND COOPERATIVES

STATE DEPARTMENT OF CROP DEVELOPMENT AND AGRICULTURAL RESEARCH

Terms of Reference

For Multi-Disciplinary Technical Team for Environmental, Social and Human Health Monitoring of the Desert Locust Control Activities

for Emergency Locust Response Program in Kenya

November 2020

Abbreviations

ELRP	Emergency Locust Response Program
GBV	Gender Based Violence
ESMF	Environmental and Social Management Framework
ESCP	Environmental and Social Commitment Plan
GoK	Government of Kenya
IPMP	Integrated Pest Management Plan
MoALFC	Ministry of Agriculture, Livestock, Fisheries and Cooperatives
SEP	Stakeholder Engagement Plan
WB	World Bank
FAO	Food and Agriculture Organization
CERC	Contingency Emergency Response Component
SDGs	Sustainable Development Goals
PASDEP	Accelerated and Sustainable Development to End Poverty

Table of Contents

1. BACKGROUND 4

1.1 National and Regional Perspective 4
1.2 Project Description 4

2. ENVIRONMENTAL, HEALTH AND SAFETY RISK MANAGEMENT 6

3. SCOPE OF THE ENVIRONMENTAL AND HEALTH MONITORING EXERCISE 8

4. OBJECTIVES OF THE MULTI-DISCIPLINARY TECHNICAL TEAM 8

Specific Objectives 8

5. EXPECTED DELIVERABLES 10

6. MOALFC SUPPORT AND FACILITATION: 10

1. Background

1.1 National and Regional Perspective

The Horn of Africa, which includes Kenya, has been infested with large swarms of desert locusts. The desert locusts crossed into Kenya through Ethiopia and Somalia in late December 2019. The swarms have spread rapidly and have so far been confirmed in Counties in North Eastern and Central parts of Kenya including: Mandera, Wajir, Marsabit, Garissa, Samburu, Isiolo, Laikipia, Meru, Baringo, Kitui, Tana River, Tharaka Nithi, Embu, Machakos, Turkana, Kajiado, Kirinyaga and Murang'a. Thus, many of the Counties, suffering the impacts of the desert locust infestation, in the Northern parts of Kenya are largely Arid and Semi-Arid Lands (ASALs) where the majority of the residents practice nomadic pastoralism as a livelihood. These areas are also home to some of Kenya's national parks, reserves and conservancies. The Central parts of the Country are categorized as the highlands and a significant number of residents practice small-scale agriculture. The activities proposed in this operation include ground and aerial spraying with the use of both synthetic chemical pesticides and bio pesticides. These pesticide applications are likely to affect the natural resource-based livelihoods and the health and safety of these communities.

The Government of Kenya (GoK) has embarked on desert locust control activities with technical support from the Food Agriculture Organization (FAO). Previously, the World Bank has provided support through a Contingency Emergency Response Component (CERC) under the Kenya Climate Smart Agriculture Project (P154784), which has financed initial desert locust control activities in the same regions. In addition, the GoK has received financing under the Emergency Locust Response Program (ELRP) through Multiphase Programmatic Approach (MPA) to complement the ongoing desert locust control activities.

The use of synthetic pesticides continues to play an increasingly important role in desert locust control activities. However, pesticides contain hazardous substances and impurities that can pose serious threats to human health and the environment if proper pesticide management practices are not applied and complied with. Thus, it is imperative on the GoK to implement sound management of pesticides in order to achieve sustainable development, where environment and human health are at the core of planning and implementing the desert locust control activities. Preventing adverse environmental, health and safety impacts of pesticide use for the control activities is in line with the FAO directive on safety and environmental precautions and the National Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). The use of chemical pesticides can potentially result in negative risks and impacts that may relate to: (i) transport, handling, storage of the pesticides, dosage during treatment and disposal of used pesticide containers; (ii) risk of polluting ecologically sensitive habitats such as wetlands, national parks and water bodies; (iii) risks that pasture, local water sources and cropping areas may be contaminated; (iv) contamination and poisoning of the pesticides control teams; (v) risk of diversion of pesticides for other uses; (vi) inappropriate use of pesticides; and (vii) potential risk of accumulation of obsolete stocks. Thus, the Ministry of Agriculture Livestock Fisheries and Cooperatives (MoALFC) is putting in place mechanisms and measures to monitor and evaluate the resultant environmental, safety and health impacts of the desert locust control activities.

1.2 Project Description

The following are the main project components under Emergency Locust Response Program (ELRP), for which this TOR was developed:

Component 1: Surveillance and Control Measures. The objective of activities under this component is to limit the growth of existing climate-change-induced Desert Locust populations and curb their spread, while mitigating the risks associated with control measures and their impacts on human health and the environment. Activities to be supported would be continuous surveillance and monitoring, spraying of hopper bands and adult swarms, and delivery of training and capacity building to field teams to ensure that operations are carried out in a safe and effective manner. Specifically, field teams will receive training on prevention of gender-based violence, sexual harassment and sexual exploitation & abuse including multispectral response and link to services. Appropriate reporting protocols will also be put in place and awareness raising on the same. The following activities will be further scaled up through this operation.

Sub-component 1.1: Continuous Surveillance. This sub-component will finance the surveillance activities including both aerial and ground surveillance. The surveillance activities will be anchored at the national level and will be undertaken through already established ground control stations that cumulatively cover all the impacted counties.[1] Continuous surveillance will be designed to enable informed and climate-responsive locust management decision-making. Satellite images and the associated geospatial technologies can provide timely data to assess the risk of impending locust outbreaks. This information could be used for targeted preventative management actions in the locust breeding areas under changing climatic conditions. Habitat mapping will apply climate, soil and other variables to map susceptibility of land areas in space and time to locust outbreak or land areas that are already affected by locusts. The surveillance activities will cover the following broad areas: (i) monitoring the presence of and movements of adult swarms, breeding and egg-laying areas and the movement of developing nymphs and hopper bands, all to support improved forecasting of breeding and migration and decision making on areas to be treated and appropriate and optimal control methods to break the cycle of the next generation; (ii) evaluating the effectiveness of locust control operations; (iii) aerial and ground assessments of damage caused by the locust upsurge to crop and pasturelands to guide targeting of livelihood protection and restoration activities to be supported under Component 2; and (iv) continuous monitoring and assessment of environmental, social and human health risks associated with locust control. Innovative approaches to surveillance such as the use of satellite maps, drones, eLocust3, GPS enabled cameras and meta-data analysis and climate information for locust risk mapping will be used, building on work already going on related to big data and disruptive agricultural technologies under the KCSAP.

Sub-component 1.2: Control Measures will reduce locust populations and prevent their spread to new areas. This would be achieved via a range of targeted ground and aerial control operations and would emphasize, whenever possible, neutralizing hopper bands before they develop into adult swarms, which leads to another cycle of infestation and expansion and requires more costly and logistically challenging aerial spraying. The use of bio pesticides will reduce GHG emissions compared to conventional pesticides. Depending on the size of hopper bands and of the related infested areas, their control can be handled either by ground control teams or aircraft spraying either with insect growth regulators, bio-pesticides or conventional chemical pesticides. The control activities will be anchored at six ground control stations. They would be on the ground monitoring the control operations and provide regular updates to the national unit. These ground stations given their proximity will also be coordinating with the county governments and clearly communicating to them the ongoing operations. The primary strategy to be employed in the control of the Desert Locust will be to target the breeding sites and control the hoppers, i.e. while locusts are still at the nymph stage before they can fly. The adult locust swarms shall be controlled mainly through aerial sprays. A thorough PMP has already been developed under the management of the World Bank's environmental specialists. This sub-component would finance the spraying equipment, protective gear, approved pesticides, and safety and awareness training for spraying teams and other locust control

personnel. Public awareness campaigns will keep the public informed about possible environmental and health effects of insecticides, before, during and after locust control operations. The project will also implement health, environmental and safety measures to reduce risks to an acceptable minimum.

Component 3: Coordination and Early Warning Preparedness. Interventions under this component would include establishing and strengthening a Locust Control Unit (LCU) within the Plant Protection Services Division (PPSD) of MoALFC at the national level to prevent future outbreaks from spiralling out of control. Early warning systems will be developed and implemented to support prevention and rapid response to new and existing climate change-induced locust infestation, thereby limiting in-country and cross-border spread and intensification. Emphasis will be placed on building capacity to enable rapid and targeted short-term responses and long-term adaptation planning. Activities under the component will include: (i) bringing in specialized personnel in the areas of Entomology, GIS, Climate Change and Climate Resilience within the LCU and undertake capacity building related to locust management activities at the national and county levels; (ii) working with the impacted counties and advocating for the establishment of similar locust control units at the county level; (iii) monitoring weather trends and normal Desert Locust territories to identify the conditions for an outbreak and early population increases; (iv) establishing communication/notification systems and protocols through international, regional, and national bodies so that warnings are not missed and that recipients of warnings understand the importance of the information (e.g., translating dense scientific material into comprehensible messages); (v) establishing linkages with international and regional bodies and developing standard operating procedures for a Desert Locust response; and (vi) supporting existing manufacturers to build the capacity to produce sufficient quantities of quality bio pesticide for use during future outbreaks.

Component 4: Project Management. This would finance the associated costs such as FM, procurement, environmental and social management, and communications. The communications component, in particular, apart from external and internal communication activities can promote increased community awareness about locust response and what they need to do when their area has been treated with pesticides (e.g., do not eat the locusts or feed them to livestock, do not dump in water bodies, etc.), as well as coordination among responsible entities (international, regional, national, and subnational) to better respond to outbreaks. A rapid information campaign will be designed and disseminated in a timely manner and in accordance with local context and requirements, preferably through local radio in relevant languages, on the techniques and timing of spraying, the chemicals used, its impacts on human health, crops and livestock, as well as risk mitigation instructions. This will be coupled with targeted consultations with key community representatives (for instance, elders and traditional leaders in the case of indigenous peoples/pastoralists) to: (i) receive feedback to adapt the actions to local needs, with special attention to vulnerable groups such as the elderly and people with disabilities, who will be supported in sheltering from the impacts of the spraying; and (ii) targeting and implementation of appropriate livelihood interventions.

2. Environmental, Health and Safety Risk Management

During Project design and preparation, the WB and the MoALFC prepared and agreed on the Environmental and Social Commitment Plan (ESCP), which sets out the material measures and actions required for the Project to meet the Environmental and Social Standards (ESSs) of the World Bank's Environmental and Social Framework (ESF) including, in relation to the Project's desert locust control activities. Under the terms agreed with the WB, the MoALFC is required to constitute a dedicated multidisciplinary team to carry out environmental, social and human health monitoring of the desert locust control activities with focus on environmental impact, occupational health and safety and pesticides residue

for Component 1 -Surveillance and Control Measures. Monitoring of issues associated with Gender Based Violence (GBV) are addressed in the GBV Action Plan for Component 1.

The MoALFC has prepared the Environmental and Social Management Framework (ESMF) and the Integrated Pest Management Plan (IPMP) which will guide the preparation of subproject (i.e. spraying area) level ESMP and IPMP in the implementation of the Component 1 (Surveillance and Control Measures).

The Ministry will constitute a dedicated multidisciplinary team to carry out environmental, social and human health monitoring of the desert locust control activities with focus on environmental and social impacts, occupational health and safety, community health and safety and pesticides residue for Component 1 -Surveillance and Control Measures. The monitoring of desert locust control operations is necessary to assess whether project implementation is avoiding adverse effects or if such effects are unavoidable, the mitigation measures to remedy such adverse impacts are appropriately implemented. The monitoring will note any issues of non-compliance and recommend appropriate corrective measures to address them. The monitoring data should be collected in a systematic manner, which will be essential to improve the desert locust control techniques, approaches and the mitigation measures.

The Multi-disciplinary monitoring team will work separately from the National Project Coordination Unit (NPCU) but will be facilitated by the NPCU who will provide the data, access to project sites, transport, equipment and other resources necessary to effectively perform its mandate. The team will be composed of representatives from relevant government lead agencies and development/research agencies. The team will consist of qualified and experienced persons including: a pesticide expert, a chemist/insecticide residue expert, an ecologist, environmental assessment expert, a medical doctor, a social specialist and other staff (s) that may be as deemed necessary for this operation.

The persons constituting the team will be seconded to the MoALFC by their respective institutions and provide technical support to the Project as required.

The team will include qualified and experienced representatives of relevant lead agencies with the legal mandate and the selected development and research agencies that will provide technical support, these will comprise:

1. Kenya Wildlife Services (KWS) -Ecologist and biodiversity expert
2. Kenya Agriculture and Livestock Research Organization -Soil scientist
3. Pesticides Products Control Board (Pesticide and toxicology expert)
4. National Environmental Management Authority (NEMA) -Environmental assessment expert
5. Directorate of Occupation Health and Safety Services (DOSHS) Medical doctor
6. Water Resources Authority (WRA)
7. Kenya Forest Services (KFS)
8. Food Agricultural Organization (FAO)-Pesticide expert
9. International Centre of Insect Physiology and Ecology (ICIPE)-Entomologist expert
10. Ministry of Labour and Social Protection-Social expert (social issues)

3. Scope of the Environmental, Social and Health Monitoring Exercise

The MoALFC will monitor the environmental, social and human health including community health performance of the Project in accordance with the legal agreement (including the Environmental and Social Commitment Plan (ESCP) with the World Bank. The environmental, social and human health monitoring will be undertaken in the fifteen counties that are impacted by the desert locust infestations where the MoALFC is undertaking the control activities. The dedicated operational monitoring will be carried by the multi-disciplinary team on a regular and ad hoc basis during the desert locust control operations.

The MoALFC will ensure that adequate institutional arrangements, systems, resources and personnel are in place to carry out monitoring. The MoALFC will provide the necessary data, access, equipment and resources to undertake the dedicated environmental, social and human health monitoring activities and facilitating the team(s) as required.

The monitoring team will engage the community members where the desert locust control activities are taking place to establish: (i) adequacy of the stakeholder engagement process before and after the spraying activities; (ii) level of communication and awareness among communities; (iii) the functionality of the project level grievance redress mechanism; (iv) adverse health and safety impacts among communities due to the control activities; and (v) adverse impacts on their assets (pasture, livestock and property) and livelihoods. The monitoring team will collect soil and pesticide residue samples for data collection and analysis and submit monitoring reports to the MoALFC every month and as the need may arise.

4. Objectives of the Multi-disciplinary Technical Team

To undertake dedicated operational regular and ad hoc monitoring of environmental and social impacts, occupational and community health and pesticides residues of the desert locust control activities during the campaign for the ELRP in the 15 target counties in Kenya.

Specific Objectives

The specific objectives of the Multi-disciplinary technical team include:

i. **Environmental and Ecological Monitoring:** The monitoring team will assess possible mortality (ies) and morbidity(ities) of non-target organisms by the desert locust control activities and observe if populations of important groups of flora and fauna in the treatment zone have been affected. The team should carry out qualitative assessments of direct impacts of the pesticides treatments/application e.g. impacts on bee keeping, large bee mortality and behaviour changes on birds and any other effects on species identified in the target area. The Pesticide and toxicology expert from Pesticides Products Control Board attached to the monitoring team will be responsible for this specific assessment.

ii. **Occupational, Health and Safety Exposure Assessments:** The team will monitor the implementation of mitigation measures in the approved Integrated Pest Management Plan (IPMP) and supplementary IPMPs that will be prepared in implementation. The team will monitor the transport, storage (central and site) of the pesticides, actual spraying, waste collection and waste disposal for pesticide containers and whether the desert locust controls teams have been exposed to the both synthetic chemical pesticide Fenitrothion 96% ULV and bio pesticide, Metarhizium in an unsafe manner. The doctor in the monitoring team will establish and properly document any

incident of pesticides poisoning and its resolution, and recommend appropriate remedial measures to avoid recurrence; ensuring that such mitigation and remedial measures are in line with provisions on management of pesticides in ESS3 on Resource Efficiency and Pollution Prevention and Management, as well as ESS4 on Community Health and Safety, and ESS2 on Labor and Working Conditions. The monitoring team will include a medical doctor to support in assessing community/occupational health and safety exposure to both the community and control teams.

iii. **Impacts to Local People and Livelihoods:** The team, which will include the labour/social specialist, will assess the adequacy of the public consultations and communication to the local populations where the desert locust control activities are taking place, in line with the provisions of the WB ESF, in particular ESS4 on Community Health and Safety and ESS10 on Stakeholder Engagement and Information Disclosure. This will include reviewing the minutes of the meetings, attendance list for the public consultation meetings, media communication materials or radio adverts/campaigns. The monitoring team should administer a questionnaire to the community(ies) and selected stakeholders to assess effectiveness of the stakeholder engagement process and communication strategy for the spraying activities as well as the grievance redress mechanism. The monitoring team will assess the potential exposure of local population to the desert locust control activities, which will be done through indirect assessments that include: (i) analysis of pesticides residues on pastures, crops and local surface and ground water sources; (ii) verification of buffer zones and withholding periods; and (iii) observations of potential livestock, wildlife and birds mortalities, and any medical problems or diseases including respiratory that may have been caused by the pesticides. Impacts to community's assets and livelihoods as result of spraying will also be considered.

iv. **Waste Management:** The monitoring team will assess the management of the waste containers including drums that were used for holding the pesticides; the waste management should be as per the mitigation measures on approved IPMP and subproject level IPMPs. The monitoring should be carried out during spraying and after spraying activities. The monitoring team should review the chain of custody documentation related used waste pesticides containers.

v. **Field Visits and Assessment:** The monitoring team will undertake regular and ad hoc field visits to the areas impacted by the desert locust and where control activities have taken place or are ongoing to interact with the local populations and in line with ESS10 on Stakeholder Engagement and the approved SEP will undertake effective and inclusive consultations to obtain their views on impacts of the control activities upon them, their livelihoods and crops/livestock, and local wildlife population and to undertake the necessary assessment on soils, flora and fauna.

vi. **Residue Sampling of Pesticides Residues:** The team will collect soils and water samples and other relevant samples to analyse the pesticides residue concentrations, establish if the concentrations are within allowed legal limits or are within the acceptable environmentally safe levels. The team will also investigate any grievances raised in relation to non-target poisoning. Sampling will be done on soils, surface and ground water if possible.

vii. **Recommend Appropriate Mitigation/Corrective Measures**: During the field assessments, the monitoring team will identify and document gaps in managing environmental, health and safety risks, advise the control teams and the MoALFC of appropriate corrective measures to avoid recurrence and document lessons learnt for future control activities.

5. Expected Deliverables

The monitoring team will prepare an inception report based on the ESMF and IPMP outlining the approach to monitoring activities and the proposed format of the monitoring reports.

The monitoring team is expected to undertake regular and ad hoc field visits to the 15 Counties or more that are undergoing desert locust control activities. The monitoring team will prepare monthly reports which will be submitted to the Project Coordination Unit by the 10th day of every month or as need may arise with findings and recommendations.

The borrower through its implementing agency, MoALFC will provide regular reports as set out in the ESCP (in any event, no less than annually) to the World Bank of the results of the monitoring. Such reports will provide an accurate and objective record of project implementation, including compliance with the ESCP and the requirements of the ESSs. Such reports will include information on stakeholder engagement conducted during project implementation in accordance with ESS10. The MoALFC and the other stakeholders implementing the project, will designate appropriate officials to be responsible for reviewing the reports.

Based on the results of the monitoring, the MoALFC will identify any necessary corrective and preventive actions and will incorporate these in an amended ESCP or the relevant management tool, in a manner acceptable to the Bank. The MoALFC will implement the agreed corrective and preventive actions in accordance with the amended ESCP or relevant management tool and monitor and report on these actions.

Activity	**Timeline/Deadline**
1) Inception report based on the ESMF and IPMP	Two weeks after appointment by the Principal Secretary
2) Monthly Environmental, Social and Human Health and Community Health Monitoring (ESHHCH) Reports	10th of every month
3) Final/ Completion ESHHCH Monitoring Report	End of project

6. MoALFC Support and Facilitation:

The MoALFC facilitate the monitoring team with the following:

- Transport logistics to and from the field;
- Relevant documentation (including project IPMP, ESMF, etc.) to inform the design of the monitoring activities;
- Access to project sites;
- Relevant equipment and materials to undertake effective environmental, social and human health monitoring of the desert locust control activities. This includes PPE for each of the technical team members; and
- Any other resources that include allowances as per the approved job grades.