Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia

Environmental and Social Management Framework

25 January 2018
Annex VI (a) – Environmental and Social Management Framework

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EXECUTIVE SUMMARY

This project aims to address these risks, with the key objective to enhance the lives and livelihoods of smallholder farmers in Agro-ecological Regions I and II in Zambia to adapt and become resilient to the impacts of climate change and variability.

The project will make targeted interventions to capitalize on opportunities to strengthen and promote viable climate-resilient value chains relating to smallholder agriculture in the target regions, specifically targeted value chains that are gender-sensitive and provide viable economic opportunities for women. This includes three interrelated sub-components: 1) strengthening capacity of farmers to plan for climate risk; 2) strengthening resilient agricultural production and diversification practices (for both food security and income generation); and 3) strengthening farmers’ access to markets and commercialization of resilient agricultural commodities.

Within the two Agro-ecological regions, smallholder farmers in 5 provinces (namely, Eastern, Lusaka, Muchinga, Southern and Western will be directly targeted by the project, specifically including the following 16 districts: Mambwe, Nyimba, Chongwe, Luangwa, Chiriundu, Rufunsa, Chama, Mafinga, Kazungula, Siavonga, Gwembe, Namwala, Shang’ombo, Senanga, Seshke and Mulobezi. The direct beneficiaries will represent approximately 946,153 people. These districts were selected given their specific vulnerability to climate change risks, primarily increasing droughts, variability of rainfall and occasional floods, coupled with high incidence of poverty. Target beneficiaries currently have little resilience to cope with climate impacts or sustain livelihoods in the face of climate.

As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP’s Social and Environmental Standards Procedure. Risk assessment identified some moderate risks within the project, which has therefore been determined to be Moderate Risk (World Bank/International Finance Corporation Category B) project. As such, an Environmental and Social Management Framework (ESMF) has been prepared for the project.

An ESMF is a management tool used to assist in minimising the impact to the environment and socially; and establish a set of environmental and social objectives.

This ESMF has been prepared to support the project proposal. It provides mechanisms for managing risks identified during the proposal development. To ensure the environmental and social objectives of the projects are met, this ESMF will be used by the project implementers to structure and control the environmental and social management safeguards that are required to avoid or mitigate adverse effects on the environment and communities.

This ESMF has been structured so that it can be reviewed and updated as the project is implemented.
INTRODUCTION

This Environmental and Social Management Framework (ESMF) has been prepared in support of a project proposal for “Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia” by the Government of Zambia (GoZ) to the Green Climate Fund (GCF). As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP’s Social and Environmental Standards Procedure and deemed a Moderate Risk (World Bank/International Finance Corporation Category B) project. As such, an Environmental and Social Management Framework has been prepared for the project.

1.1 BACKGROUND

According to the National Water Master Plan, the south-western parts of Zambia extending from Mongu in Western Province to the Southern Province are the most drought-prone regions within Zambia (Baumle et al 2007). The Ministry of Agriculture (MoA) in collaboration with the Zambia Meteorological Department (ZMD) with support from UNDP, is formulating a project on adaptation to climate change impacts in the agriculture sector for submission to the GCF. The project will seek to improve the resilience of vulnerable communities to climate change impacts.

1.2 OVERVIEW OF THE PROJECT

The proposed project will seek to finance the scaling-up of successful adaptation measures in the agriculture sector, particularly targeting small scale farmers, and strengthen the climate change information and early warning systems for agricultural planning and decision-making. These solutions will be implemented through a value chain approach taking into account gender considerations focusing on three components:

- Increasing capacity to plan for and manage climate risks;
- Securing agriculture production within the value chain from the impacts of climate change; and
- Increasing the farmers’ access to markets and commercialization of resilient agricultural products.

The project will complement GoZ efforts in making the agriculture sector resilient to the shocks of climate change, particularly among the small-scale farmers whose agriculture is predominantly still rain-fed. The project will invest in improving early warning and risk management information systems, strengthening access to water through irrigation schemes, storage, capture and other resilient water management technologies, increasing access to seeds that are drought and pest resistant and early maturing crop varieties, introducing climate resilient agricultural practices, promoting agriculture intensification practices for land and soil conservation techniques, strengthening processing, storage and transportation of products to markets, strengthening links between farmers and Small Medium Scale Enterprises (SMEs), and strengthening demand for climate resilient products.

Project activities will focus on Agro-Ecological Regions I and II, in districts which lie across the southern portions of Zambia (Figure 1). Sixteen districts will be involved (Figure 2 and Table 1) with approximately 946,153 people directly benefiting and a total of approximately 5,329,570 indirect beneficiaries (see Project Proposal and Feasibility Study for additional information).

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Figure 1 Agro-ecological regions of Zambia. Project targets regions 1 and 2

Figure 2 Location of target districts
Table 1 Target districts (as two clusters) and population per district

<table>
<thead>
<tr>
<th>Southern-Western Districts</th>
<th>Central – Eastern Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td>Population</td>
</tr>
<tr>
<td>Chirundu</td>
<td>47,000</td>
</tr>
<tr>
<td>Gwenmbe</td>
<td>53,117</td>
</tr>
<tr>
<td>Kazungula</td>
<td>104,731</td>
</tr>
<tr>
<td>Mulobezi</td>
<td>36,005</td>
</tr>
<tr>
<td>Namwala</td>
<td>102,866</td>
</tr>
<tr>
<td>Senanga</td>
<td>126,506</td>
</tr>
<tr>
<td>Sesheke</td>
<td>99,384</td>
</tr>
<tr>
<td>Siavonga</td>
<td>90,213</td>
</tr>
</tbody>
</table>

Summary of Activities

The proposed project will have the following activities.

Output 1: Smallholder farmers are able to plan for and manage water resources to support resilient agricultural production

Activity 1.1. Strengthen generation and interpretation of climate information and data collection to ensure timely and detailed weather, climate, crop and hydrological forecasts is available to support smallholder farmers in planning and management of water resources used in resilient agricultural practices.

- Strengthen climate information and data collection, including enhancing the observation network. This includes introduction of 33 Automatic Weather Stations in the target districts (managed by ZMD) as well as strengthening the groundwater monitoring systems (introducing 12 WQ and GW data loggers and computer hardware, 12 Boreholes for monitoring groundwater, and a Regional Laboratory), enhancing the surface water monitoring systems (15 surface water monitoring stations, 10 gauging weirs and instrumentation for 15 gauging stations) and strengthening software and hardware for catchment water modelling (managed by WARMA). Strengthen capacity of staff in ZMD, MoA and WARMA on operation and maintenance of climate and water monitoring equipment and infrastructure. The WARMA equipment lifespan is projected at 5 years. From the project’s O&M schedule (Table 45, Feasibility Study), WARMA will gradually take over full O&M financing after year 4 of the project period, the costs of which will be incorporated in the O&M budget for WARMA. Similarly, ZMD will provide co-financing for observing network to enhance services through government funding which is US$320,000 as indicated in feasibility study 3.1. According to the yellow book from 2011, the budget allocation has maintained an increase of 8% each year. At least 3% is channelled to O&M.

- Strengthen capacity of Ministry of Agriculture to use crop models for monitoring current conditions and with weather and seasonal forecasts to plan irrigation scheduling, fertilizer application and other agricultural management practices at critical periods within the crop growth cycle.

- Strengthen capacity of ZMD on generation, analysis and modelling of the climate information, particularly on the use of MOSAICC (to integrate climate modelling, crop simulations and hydrological forecasts) for shorter term planning. This builds on experience with long-term...
forecasting using MOSAICC’. CASU also provides useful experience as noted in the FS, Section 5.2.2.

- Engage with and strengthen University programmes targeting climatologists, to enhance Zambian capacity overall for climate and weather information generation and analysis.
- Strengthen capacity of Ministry of Energy and Water Development through the Water Resources Management Authority (WARMA) to develop water advisories related to surface and groundwater management. This includes providing information on groundwater and surface water levels based on rainfall, water runoff, temperature, extraction rates, water balance modeling, etc.
- Support ZMD and Department of Agriculture to develop tailored crop weather advisories drawing on weather and seasonal forecasts, crop modeling, fertilizer application and irrigation scheduling for target districts. This will be tailored both for smallholder farmers as well as SMEs and partners engaged in the post-production activities (e.g. drying, processing, distribution, storage).
- Development of a standard operating procedure for coordination among agencies generating, interpreting and disseminating the climate information – namely ZMD, Department of Agriculture, WARMA, DMMU and others through an established and mandated inter-agency coordinating platform. While some work to strengthen the observation network is being undertaken under ZMW-RDP, GIZ, kfw and TNC initiative, the infrastructure introduced under this proposal will complement this ongoing work with much needed infrastructure.

Activity 1.2. Strengthen dissemination and use of tailored weather/climate-based agricultural advisories to ensure smallholder farmers receive the information they need for planning and decision-making. This activity will include the following sub-activities:

- Disseminate enhanced agricultural advisories through existing communication channels including community radio, television, field extension services, print media and effective engagement with the media services.
- Facilitate public-private-partnerships (PPPs) between ZMD and mobile companies to establish SMS dissemination systems to farmers. This would include workshops and meetings, expert consultants on legal matters and PPPs, etc. It could also help to introduce or build on SMS delivery systems for broader socially-relevant information for farmers (e.g. health, education) that would also incorporate climate-related products.
- Facilitate other partnerships between ZMD and other private sector actors (e.g. civil aviation, insurance, tourism) who would provide an additional income stream for ZMD to operate and maintain their systems.
- Training of trainers (extension workers and lead farmers from government and NGOs) on how to interpret climate information/advisories and identify options for use of information through decision-making. This approach would use historical climate observations with farmers to develop options to respond to climate variability and change, including options available through output 2. It would further guide farmers on the use of weather and seasonal forecasts, disseminated through different media, to adapt to anticipated (forecast) weather/climate.
- Dissemination of training to target smallholder farmers. This training would be linked to the farmer field schools and learning centers of excellence (Output 2.5), where integrated learning would take place around climate risk, agricultural production, alternative livelihoods and value chain development.
- Support farmer to farmer exchanges on how information is being received and applied for selecting resilient practices and also applying value chain development (e.g. impact of drought on processing and storage). Same as above, linked to Output 2.5.
- Training of PDCC, DDCC and Ward-level policy makers on how to use relevant climate information to inform policies and planning through existing meeting forums and structures.
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Output 2: Resilient agricultural livelihoods in the face of changing rainfall, increasing drought and occasional floods

Activity 2.1: Promote irrigation schemes, water storage and capture as well as other resilient water management strategies to increase access to water for agricultural production in the target districts within Agro-ecological Regions I and II. This activity will include the following sub-activities:

- Introduce new water management and storage infrastructure in each target district, based on existing infrastructure and remaining needs. The following numbers are drawn from district/camp-level consultations held during the proposal development process. These will be further confirmed and refined during the first stages of implementation, based on in-depth participatory assessments in each camp.
  - Introduction of 196 farm ponds to maintain and manage water resources and support alternative livelihoods.
  - Introduction of 27 community-based multipurpose weirs.
  - Introduction of 167 irrigation systems (with boreholes, solar pump technologies, water tanks and drip irrigation equipment).
  - Install or rehabilitate 19 canals and water distribution systems.
  - Construct 71 market facilities (bulking centres/storage facilities).
- Strengthen operation and maintenance of new irrigation small scale infrastructure, particularly through strengthening water user associations.
- Strengthen management of catchment areas by local associations, institutions and lead farmers, building on the existing management structures supported by WARMA. This will include strengthening the capacity of 19,000 farming households, including strengthening water user groups and formal Water User Associations, enhancing the development plans for each catchment, and strengthening the capacity of farmers and other actors in how to operationalize these plans.

Activity 2.2: Increased access to agricultural inputs (e.g. seeds, soil kits, tools) for resilient crops. This activity will include the following sub-activities:

- Provide farmers with access to initial inputs of drought and pest-tolerant seeds, soil kits, and tools to successfully introduce new resilient agricultural practices, including Conservation Agriculture. This will be done through a pass-on mechanism that will also establish management groups for the sharing and dissemination of seeds, including establishing seed banks.
- Strengthen or establish cooperatives in each of the 16 districts to manage production and distribution of improved seed varieties. This will be done jointly with farmers and existing as well as new cooperatives through training on seed production methods so they can produce the seed for sale in the community.
- Share information with farmers on the value of improved seed varieties suitable for their local areas, drawing on existing evidence from previous demonstrations and analyses. This will be done through direct training of extension workers and farmers in each of the 16 districts, and farmer to farmer exchanges within and between districts.
- Integrate newly introduced seed multiplication and distribution practices into local and district-level planning, including raising awareness and training of local policy makers on benefits of the practices. This will be done through site visits, dialogues with smallholder farmers and distribution/presentation of analyses done under M&E processes.

Activity 2.3: Introduction of new resilient agricultural production practices to strengthen production and diversify crops amidst climate variability and change.

- Strengthen farmer/user groups on crop diversification of members considered as champions at each camp to facilitate and oversee the adoption of drought-tolerant and alternative crops by the wider communities (e.g. rice, cassava, cowpeas, soyabeans, pulses and horticulture).
- Apply different conservation agriculture and other resilient techniques in each of the target communities, drawing on the assessments done under the CCAP on pilot techniques. These practices will include:
  - Intercropping;
  - Crop rotation;
  - Organic manure application;
  - Composting;
  - Leguminous cover cropping;
  - Minimum tillage, and
  - Agroforestry
- Strengthen capacity of farmers/user groups to maintain selected sustainable agricultural practices in each community.
- Integrate newly introduced sustainable agricultural practices and diversified crops into local and district-level planning, including raising awareness and training of local policy makers in benefits of the practices. This will be done through site visits, dialogues with smallholder farmers or distribution/presentation of analyses done under M&E processes.

**Activity 2.4: Introduce alternative livelihoods to strengthen resilience in target communities.**
- Provide inputs to farmers to introduce and strengthen alternative livelihoods (e.g. beehives and beekeeping equipment, goats, fish). This will be done through a pass-on mechanism embedded in the agreement, so that the inputs reach a greater number of farmers. Section 3.5.1 provides details.
- Strengthen or establish cooperatives in each of the 16 districts to manage fish breeding ponds in order to produce and distribute fish to the rest of the community.
- Strengthen capacity of farmer beneficiaries across all 16 target districts to adopt and maintain new alternative livelihoods.
- Integrate newly introduced alternative livelihood practices into local and district-level planning, including raising awareness and training of local policy makers on the benefits of the practices. This will be done through site visits, dialogues with smallholder farmers or distribution/presentation of analyses done under M&E processes.

**Activity 2.5: Establish farmer field schools and learning centers of excellence to further document and scale up successful practices.**
- Establish or strengthen existing farmer field schools in each of the target camps across the 16 districts
- Training of trainers (extension staff) to facilitate experiential learning by communities
- Establish or rehabilitate learning centers of excellence in each of the 16 target districts

**Output 3: Increasing farmers’ access to markets and commercialization of resilient agricultural products.**

**Activity 3.1: Strengthen processing of resilient products.**
- Establish multi-purpose processing centers with processing equipment across each of the 16 target districts. These centers will include equipment and energy sources (e.g. solar) and will be multi-purpose, depending on the realities of the season and needs of the community. This will be closely tied to the farmer field schools, located in each of the target camps, where the centers will be co-located.
- Provide training to farmers on processing techniques.
- Provide training to farmers on the use and maintenance of processing equipment.
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Activity 3.2: Strengthen storage, aggregation and transportation of resilient products to enhance commercialization and linkages to market and SMEs.

- Scale up ongoing ‘Dial-A-Load’ project which provides transporters with supply-and-demand information platform including on climate resilient products for more effective use of trucking capacity in rural areas.
- Support smallholder farmers with toyo cycles for transport on a loan basis.
- Support the development of a private sector-led distribution network for household level hermetic storage solutions.
- Promote the use of hermetic storage solution among smallholders to reduce post-harvest losses due to climate change impacts (e.g. air-tight bags, metal and plastic silos).
- Development of marketing strategy for dissemination of post-harvest handling technology for integration into ongoing government programmes.
- Support the establishment of private-sector managed, rural buy/aggregation points with storage and processing facilities where smallholders and buyers can trade and access a variety of agricultural services for climate-related conditions, including support to Zamace.
- Promote and support capacity of smallholder farmers organizations on the use of Zamace and the warehouse receipt system.
- Training to farmers on quality assurance, group marketing, and negotiation skills related to climate resilient products.
- Develop a ‘Virtual farmers Market’ (supply-and-demand information and payment platform that focuses on climate resilient products) that enables equitable and competitive trade between smallholders and traders.

Activity 3.3: Increase access to finance and insurance products for smallholder farmers by engaging with potential financing sources including public, private, bilateral and multi-lateral sources.

- Facilitating partnership creation between farmers and financial institutions on the provision of credit and access to insurance schemes for smallholder farmers.
- Scaling up provision of agricultural credit training and awareness raising on financial education programmes for farmers.

Undertaking research and providing technical support to strengthen insurance product development of more area specific weather–index based agricultural insurance products

Activity 3.4: Identify available markets and promote climate-resilient products

- Scale-up rural procurement from smallholder farmers of indigenous foods required for the national home-grown school feeding programme.
- Scale up the provision of nutrition education and establishment of school gardens to sensitize school children
- Facilitate links between private sector value chain actors and smallholders producing resilient crops

1.3 ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT

As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP’s Social and Environmental Standards Procedure. The Social and Environmental Screening Template was prepared and the project deemed to be a moderate risk (Category B) project. Discussions on the impact assessment are provided in the Social and Environmental Screening Template, which provided the rationale for the project being classified as a moderate risk. This ESMF provides further discussion below.
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An impact risk assessment was undertaken using the UNDP Social and Environmental Screening Procedure to assess the probability (expected, highly likely, moderately likely, not likely) and the impact of the risk (critical, severe, moderate, minor, negligible). From this, a significance value was attributed to the potential impact (negligible, low, medium, high and extreme).

<table>
<thead>
<tr>
<th>Score</th>
<th>Rating</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Critical</td>
<td>Significant adverse impacts on human populations and/or environment. Adverse impacts high in magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of indigenous peoples; involve significant displacement or resettlement; generate significant quantities of greenhouse gas emissions; impacts may give rise to significant social conflict.</td>
</tr>
<tr>
<td>4</td>
<td>Severe</td>
<td>Adverse impacts on people and/or environment of medium to large magnitude, spatial extent and duration more limited than critical (e.g. predictable, mostly temporary, reversible). The potential risk impacts of projects that may affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples are to be considered at a minimum potentially severe.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
<td>Impacts of low magnitude, limited in scale (site-specific) and duration (temporary), can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures.</td>
</tr>
<tr>
<td>2</td>
<td>Minor</td>
<td>Very limited impacts in terms of magnitude (e.g. small affected area, very low number of people affected) and duration (short), may be easily avoided, managed, mitigated.</td>
</tr>
<tr>
<td>1</td>
<td>Negligible</td>
<td>Negligible or no adverse impacts on communities, individuals, and/or environment.</td>
</tr>
</tbody>
</table>

Table 2 Rating of Probability of Risk

Table 3 Rating of Impact of Risk
When undertaking the risk assessment, all activities were assessed, including, hard/soft infrastructure and livelihood interventions. Specific measures for each matter eg water, erosion, noise etc are discussed along mitigation measures later in this ESMF.
## Table 5  Project Risk Assessment

<table>
<thead>
<tr>
<th>Activity</th>
<th>Unmitigated Impacts</th>
<th>Probability of Impact and Impact</th>
<th>Avoidance and Mitigation Measures</th>
<th>Probability of Impact and Impact post mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output 1: Smallholder farmers are able to plan for and manage water resources to support resilient-agricultural production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity 1.1: Strengthen generation and interpretation of climate information and data collection to ensure timely and detailed weather, climate, crop and hydrological forecasts is available to support smallholder farmers in planning and management of water resources used in resilient agricultural practices.</td>
<td>This activity focuses on enhancing the data collection and information generation of weather, agricultural and water advisories. This includes installation of 33 Automatic Weather Stations, 12 groundwater loggers and computer hardware, 12 boreholes for monitoring groundwater, 15 surface water monitoring stations, 10 gauging weirs and instrumentation for 15 gauging stations. A Regional Laboratory will be created. New software and training will be provided to ZMD, MoA, and WARMA. Risks include:</td>
<td>Probability: 2 Impact: 3 Risk: Low</td>
<td>Detailed review of equipment needs and assessment of most appropriate equipment both in terms of service and maintenance. Inclusion of universities in development, use and training Software tried and tested in market place ie known to be effective Training provided to range of users. Train the trainer for knowledge transfer SOP for coordination among agencies generating, interpreting and disseminating climate data will be developed. Construction workers to have appropriate OHS training and PPE. Implement measures outlined in ESMF, including development of a safety plan.</td>
<td>Probability: 1 Impact: 2 Risk: Low</td>
</tr>
<tr>
<td>Activity</td>
<td>Unmitigated Impacts</td>
<td>Probability of Impact and Impact</td>
<td>Avoidance and Mitigation Measures</td>
<td>Probability of Impact and Impact post mitigation</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------</td>
<td>---------------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Activity 1.2: Strengthen dissemination and use of tailored weather/climate-based agricultural advisories to ensure smallholder farmers receive the information they need for planning and decision-making</td>
<td>This activity focusses on development of advisories and training. There is the potential for the following risks/impacts to occur: Advisory messages are not clear or targeted appropriately. End users don’t understand messages or fail to act upon them. Dissemination and use creates a demand that is exploited by media service providers and service costs increase.</td>
<td>Probability: 3 Impact: 3 Risk: Moderate Probability: 2 Impact: 3 Risk: Moderate</td>
<td>Test messaging styles with focus groups. Develop products and use dissemination techniques that are relevant and target women Support farmer to farmer exchanges on how information is being received and applied. Training of trainers (extension workers and lead farmers from government and NGOs) on how to interpret climate information/advisories and identify options for use of information through decision-making. This will help ensure messages clear to farmers Use wide range of media channels to provide both diversity of receival mechanisms (access) as well as reducing dependency on any one service. Facilitate public-private-partnerships (PPPs) between ZMD and mobile companies.</td>
<td>Probability: 1 Impact: 2 Risk: Low Probability: 1 Impact: 3 Risk: Low</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Activity</th>
<th>Unmitigated Impacts</th>
<th>Probability of Impact and Impact</th>
<th>Avoidance and Mitigation Measures</th>
<th>Probability of Impact and Impact post mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Training does not reach sufficient farmers or policy makers or they fail to incorporate climate information into planning activities</td>
<td>Probability: 2  Impact: 3  Risk: Moderate</td>
<td>Training of PDCC, DDCC and Ward-level policy makers on how to use relevant climate information to inform policies and planning</td>
<td>Probability: 1  Impact: 2  Risk: Low</td>
</tr>
</tbody>
</table>

**Output 2: Resilient agricultural livelihoods in the face of changing rainfall, increasing drought and occasional floods**

**Activity 2.1: Promote irrigation schemes, water storage and capture as well as other resilient water management strategies to increase access to water for agricultural production in the target districts within Agro-ecological Regions I and II**

- It is proposed to abstract and contain water from waterways and extract groundwater. Excessive sized structures that significantly alter hydrology would have an adverse impact.
- No significant water structures are proposed; only small-scale irrigation is proposed. The use of weirs or small dams will allow high/flood flows to pass.
- All construction represents some risk to workers.

<table>
<thead>
<tr>
<th>Probability: 3  Impact: 3  Risk: Moderate</th>
</tr>
</thead>
</table>

- Existing infrastructure will be utilised and rehabilitated where possible which will reduce any adverse impacts significantly.
- All dams/ponds have been designed to be small scale, thus reducing vegetation and habitat loss, evaporation rates and will not be constructed in sensitive environments.
- All ponds will be off-stream, thus reducing the potential for flooding of other environments.
- Implement standard OHS precautions.

<table>
<thead>
<tr>
<th>Probability: 2  Impact: 3  Risk: Moderate</th>
</tr>
</thead>
</table>

There is the potential for excessive groundwater extraction.

Zambian law requires EIA to be conducted if ≥2Mm³/s (63GL/yr) of groundwater is extracted; if a dam or barrage covers a total of ≥25ha; or if an irrigation scheme is ≥50ha.

- Probability: 3  Impact: 3  Risk: Moderate

- Relatively few boreholes are proposed and the volume of water proposed to be extracted and therefore this is not considered to be significant.
- Pump tests and hydrogeology assessments will be undertaken prior to the installation of

<table>
<thead>
<tr>
<th>Probability: 2  Impact: 2  Risk: Low</th>
</tr>
</thead>
</table>
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<table>
<thead>
<tr>
<th>Activity</th>
<th>Unmitigated Impacts</th>
<th>Probability of Impact and Impact</th>
<th>Avoidance and Mitigation Measures</th>
<th>Probability of Impact and Impact post mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>bores to confirm sustainable yields and ensure over-extraction does not occur.</td>
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<td>Yield from bores are expected to be approx 1.4-10 l/s, so the maximum area of irrigation per bore will range from 0.5 – 20ha (higher flows and larger areas are for commercial bores with electrical power pumps)</td>
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<td>The volumes proposed are not sufficient to trigger an EIA under Zambian law. Notwithstanding, consideration needs to be given to downstream users and habitats to ensure adverse impacts do not occur.</td>
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<td>Prior to the extraction of any groundwater, appropriate water quality monitoring will be undertaken to ensure groundwater is suitable for use.</td>
<td>Probability: 2 Impact: 2 Risk: Low</td>
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<td></td>
<td></td>
<td>Probability: 2 Impact: 3 Risk: Moderate</td>
<td>Conversely, the project will ensure that groundwater is not impacted as a result of the project. When undertaking drilling for bore, appropriate biodegradable greases will be used to ensure no contamination. Further, the final drilling of the wells will ensure no overland flow can contaminate down the bore hole</td>
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<td></td>
<td>Groundwater can be a source of contamination, either natural or anthropogenic, so testing will be required before use to ensure quality is suitable for intended uses. The drilling of new bores or rehabilitating existing bores increases the potential for contamination of groundwater.</td>
<td>Probability: 2 Impact: 2 Risk: Moderate</td>
<td>All efforts will be undertaken to manage any pest or vector species. Where possible, larval eating fishes will be utilised in</td>
<td>Probability: 2 Impact: 2 Risk: Low</td>
</tr>
<tr>
<td></td>
<td>The creation of water bodies (dams, weirs, canals, and ponds) will provide potential breeding grounds for mosquitoes and bilhazia snails</td>
<td>Probability: 3 Impact: 2 Risk: Moderate</td>
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16
## Activity 2.1: Introduction of aquaculture

Poorly designed infrastructure may not be appropriate for users. Users may also not be aware of appropriate water/irrigation management techniques.

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<tr>
<th>Activity</th>
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<th>Probability of Impact and Impact post mitigation</th>
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<tr>
<td></td>
<td></td>
<td>Probability: 3 Impact: 3 Risk: Moderate</td>
<td>aquaculture, thereby reducing the risk as well as reducing the need for feed.</td>
<td>Probability: 1 Impact: 3 Risk: Low</td>
</tr>
</tbody>
</table>

Activity 2.2: Increased access to agricultural inputs (e.g. seeds, soil kits, tools) for resilient crops

The project involves the provision of livestock and seed and therefore there is some risk that pest species could be introduced as a result.

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<tbody>
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<td></td>
<td></td>
<td>Probability: 2 Impact: 3 Risk: Moderate</td>
<td>Only Certified seed suppliers will be used and no GMO is proposed, thereby significantly reducing any potential impact. Seed will be collected during the project for future use, thereby further reducing the need to import seed.</td>
<td>Probability: 1 Impact: 3 Risk: Low</td>
</tr>
</tbody>
</table>

Activity 2.3: Introduction of new resilient agricultural production practices to strengthen production and diversify crops amidst climate variability and change

This activity includes strengthening farmer groups, applying different conservation agriculture techniques, raising awareness of local policy makers and integrating into local planning.

Risks or potential impacts include:
- Inappropriate or unaccepted conservation practices and techniques introduced.
- Sustainable agricultural practices not maintained
- Policy makers not adequately informed/trained and newly introduced

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<td></td>
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<td>Probability: 2 Impact: 3 Risk: Moderate</td>
<td>Draw on the assessments done under the CCAP on pilot techniques. Strengthen capacity of farmers/user groups to maintain selected sustainable agricultural practices in each community. Create ‘sustainability champions’ at each camp. Raise awareness and train local policy makers in benefits of the practices. This will be done through site visits, dialogues with smallholder farmers or distribution/presentation of analyses done under M&amp;E processes.</td>
<td>Probability: 1 Impact: 2 Risk: Low</td>
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</table>
### Activity 2.4: Introduce alternative livelihoods to strengthen resilience in target communities

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<th>Probability of Impact and Impact post mitigation</th>
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<tbody>
<tr>
<td>practices and crops not integrated into local and district-level planning.</td>
<td>Probability: 2 Impact: 2 Risk: Low</td>
<td>Monitor to measure benefits of sustainable practices and disseminate ‘good news stories’.</td>
<td>Probability: 1 Impact: 2 Risk: Low</td>
</tr>
<tr>
<td>Activity is centred on capacity building focussed on more resilient livelihoods and diversification.</td>
<td></td>
<td>Provide inputs to farmers to introduce and strengthen alternative livelihoods</td>
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<tr>
<td>• Poor uptake of alternate livelihoods</td>
<td></td>
<td>Target women and women’s groups for capacity building and planning activities.</td>
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<tr>
<td>• Women not sufficiently included</td>
<td></td>
<td>Strengthen or establish cooperatives in each of the 16 districts to manage fish breeding ponds in order to produce and distribute fish.</td>
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<tr>
<td>• Introduction of fish ponds increase potential for vector borne disease such as malaria</td>
<td></td>
<td>Raise awareness and train local policy makers in benefits of the alternate livelihoods so as to integrate into local and district level planning.</td>
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<tr>
<td>• Risk of diseases in ponds causing stock loss</td>
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<td>Establish or strengthen existing farmer field schools in each of the target camps across the 16 districts and establish or rehabilitate learning centres in each of the 16 districts</td>
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<tr>
<td>• Alternate livelihoods not supported by local/district level policies and plans.</td>
<td></td>
<td>Training of trainers (extension staff) to facilitate experiential learning by communities</td>
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### Activity 2.5: Establish farmer field schools and learning centers of excellence to further document and scale up successful practices

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</thead>
<tbody>
<tr>
<td>This activity is focussed on farmer education. Farmer field schools and/or learning centres not accessible Knowledge spread limited or lost</td>
<td>Probability: 2 Impact: 3 Risk: Moderate</td>
<td></td>
<td>Probability: 1 Impact: 2 Risk: Low</td>
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</table>

### Output 3: Increasing farmers’ access to markets and commercialization of resilient agricultural products
### Annex VI (a) – Environmental and Social Management Framework

<table>
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<tr>
<th>Activity</th>
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<tbody>
<tr>
<td><strong>Activity 3.1:</strong> Strengthen processing of resilient products</td>
<td>This activity is all about improving the ability to process resilient products. Facilities don’t exist, are unsuitable or cannot be sustained. Processing centres produce waste that is not managed Poor understanding of processing Unsafe practices</td>
<td>Probability: 3 Impact: 3 Risk: Moderate</td>
<td>Multi-purpose processing centers with processing equipment established across each of the 16 target districts. These centers will include equipment and energy sources (e.g. solar) and will be multi-purpose Prepare waste management plans for all processing centres. Seek to utilise waste products as raw materials for secondary processes/activities. Provide training to farmers on processing techniques and maintenance of processing equipment. SOPs and safety plans developed for each facility</td>
<td>Probability: 2 Impact: 2 Risk: Low</td>
</tr>
<tr>
<td><strong>Activity 3.2:</strong> Strengthen storage, aggregation and transportation of resilient products to enhance commercialization and linkages to market and SMEs</td>
<td>This activity is focused on post-harvest and market aspects. Potential issues include: • Transport costs remain prohibitive • Lack of storage options • No equitable trading platform</td>
<td>Probability: 3 Impact: 3 Risk: Moderate</td>
<td>Marketing strategy for dissemination of post-harvest handling technology Scale up ongoing ‘Dial-A-Load’ project which provides transporters with supply-and-demand information platform for more effective use of trucking capacity in rural areas. Support smallholder farmers with toyo cycles for transport on a loan basis. Promote the use of hermetic storage solution among smallholders. Support establishment of private sector rural buy/aggregation points with storage</td>
<td>Probability: 2 Impact: 3 Risk: Moderate</td>
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<td>Activity</td>
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| Activity 3.3: Increase access to finance and insurance products for smallholder farmers by engaging with potential financing sources including public, private, bilateral and multi-lateral sources. | No physical infrastructure is related to this activity, so direct impacts to environment are minimal. Potential impacts relate primarily to social aspects. Risks include:  
- lack of interest from financial/insurance sector.  
- Low uptake of agricultural credit/insurance by farmers | Probability: 2  
Impact: 3  
Risk: Moderate | and processing facilities. Promote warehouse receipt systems.  
Develop a ‘Virtual farmers Market’ that enables equitable and competitive trade between smallholders and traders.  
Training to farmers on quality assurance, group marketing, and negotiation skills | Probability: 2  
Impact: 2  
Risk: Low |
| Activity 3.4: Identify available markets and promote climate-resilient products | This activity involves scaling up rural procurement of indigenous foods, scaling up nutrition education, and promotion of smallholder-private sector links. There are no impacts associated with project related physical infrastructure under this activity. Overall risks are considered quite low | Probability: 3  
Impact: 3  
Risk: Moderate | Facilitate links between private sector value chain actors and smallholders producing resilient crops.  
Broad range of stakeholders, particularly women to be involved in the scale-up rural procurement from smallholder farmers of indigenous foods. | Probability: 2  
Impact: 2  
Risk: low |
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<tr>
<td></td>
<td>• Poor private sector involvement in including smallholders in value chain.</td>
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<td>Scale up the provision of nutrition education and establishment of school gardens to sensitize school children. Provide materials that children can take home to raise awareness among others within home and villages.</td>
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<td>• Inequity in procurement and/or poor inclusion of women.</td>
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<td>• Families continue to have poor nutritional knowledge</td>
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Cumulative Impacts

Given the geographic spread of the projects no adverse physical cumulative impacts are anticipated due to interaction of the projects.

Cumulative socio-economic impacts are expected to be positive when the project successfully builds the capacity of farmers, markets and government. Successful delivery of the project will result in impacts beyond the immediate project beneficiaries, such as the development of sustainable markets and strengthen value chains that benefit all users and the country as a whole.

Negative impacts can often occur as a result of other external factors such as major developments in the vicinity of the project sites. Projects such as major urban or industrial developments can impact social aspects eg the availability of workforce, financial aspects eg increase local wages or alter cost of local consumables, and bio-physical aspects eg air or noise quality in the local environment. Field survey teams reported that there are no mines or other major developments in the vicinity of the proposed project sites, therefore no adverse cumulative impacts are expected. Any future major developments will be required under Zambian law to undergo environmental impact assessment and will therefore have to consider potential impacts of their operations on sites established by the project.

Assumptions Underpinning the Development of the Environmental and Social Management Framework

The following assumptions have been made in the preparation of this ESMF:

- none of the interventions will require the displacement of people;
- none of the interventions will be conducted in protected areas or sensitive locations;
- the building of the water harvesting and water control structures will be undertaken during the dry season to reduce erosional impacts;
- appropriate erosion and sediment control will be undertaken during all stages of the projects; and
- there will be no release of pollution and/or chemicals as a result of the projects.

Purpose and Objectives of the Environmental and Social Management Framework

An ESMF is a management tool used to assist in minimising the impact to the environment and socially; and establish a set of environmental and social objectives. To ensure the environmental and social objectives of the projects are met, this ESMF will be used by the project implementers to structure and control the environmental and social management safeguards that are required to avoid or mitigate adverse effects on the environment and communities.

The environmental and social objectives of the projects are to:

- increase the productivity of livelihoods and the populations’ capacity to adapt to climate change through various tested interventions in a coordinated manner to effectively address the challenges facing the rural populations of Zambia;
- improve the water supply in the targeted areas and introduce water conservation measures;
- improve farming practices to increase productivity and resilience including irrigation, improved seed supply, improved animal husbandry practices and diversification of crops;
- increased access to storage, transport, markets, finance and insurance to allow for improved agricultural productivity;
- provide an early warning system that ensures adequate measures are undertaken prior to any event;
- encourage good management practices through planning, commitment and continuous improvement of environmental practices;
- minimise or prevent the pollution of land, air and water pollution;
- protect native flora, fauna and important ecosystems;
- comply with applicable laws, regulations and standards for the protection of the environment;
- adopt the best practicable means available to prevent or minimise environmental impact;
- describe monitoring procedures required to identify impacts on the environment; and
- provide an overview of the obligations of MoA and UNDP staff and contractors in regard to environmental obligations.

The ESMF will be updated from time to time by the implementing Project Management Unit (PMU)/contractor in consultation with the UNDP staff and MoA to incorporate changes in the detailed design phase of the projects.

Land Issues

Zambia has complex land tenure systems characterized by three categories of land: State land (formerly Crown land during the colonial era), reserves (formerly “native reserves”) and trust land (formerly “native trust land”). The land tenure system in State land is based on the principles of English land law, whereas in the reserves and trust land, customary land tenure applies.

Land tenure systems and their evolution

- **Pre-colonial era** - In the period before colonialism, land was governed by customary law - a host of tribal laws existing in different tribal customs. Land was never viewed as a saleable commodity. Although landownership was communal, systems of regulation of communal rights existed.
- **Colonial era** - Custom was recognized as law only when it was found not to conflict with written law. In 1928, two categories of land were created: Crown land and native reserves. Crown land consisted of land reserved for European settlements and mining. In these areas, freehold tenure was applied as prescribed in English law. The reserves were vested in the Secretary of State for Colonies for the sole and exclusive occupation by the natives in perpetuity. The concept of reserves was subsequently found unsuitable for both the Africans and the Europeans, but for different reasons. The Africans resisted the concept because the reserves were overcrowded and impoverished. The Europeans wanted access to larger areas of land, which resulted in resentment of colonial rule by the Africans.

The colonial administration responded to the demands of the European settlers by introducing the concept of native trust land. Under this arrangement, all unalienated land (i.e. land not categorized as either Crown land or native reserve) that was suitable for non-native settlement or that contained mineral deposits was brought into the category of Crown land; the remainder was categorized as native trust land. On both native reserves and trust land, land administration was governed by customary law. The difference was that on trust land, the Secretary of State for Colonies could grant rights of occupancy to non-natives, whereas reserve land was for the exclusive settlement of native Africans. The reservation of the good fertile land for the exclusive settlement of whites provided the impetus for the independence struggle, especially in predominantly agricultural areas such as Southern Province.

- **Independence** - At independence in 1964, Crown land was renamed State land and the reserves and trust land were retained. All land in Zambia (except the Barotse reserve) was vested in the President for and on behalf of the people of Zambia. English law continued to apply to State land while customary law continued to apply to reserves and trust land.

In 1975, President Kaunda announced far-reaching changes in landownership and land tenure in Zambia. These changes were largely brought about against a background of land speculation and manipulation of property rights. All freehold titles to land were abolished and existing interests were abridged to statutory leaseholds of 100 years’ duration, un-utilized tracts of farm land were taken over by the State, Presidential consent was subsequently required for dealing in land, and real estate agencies were ordered to close down.

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2 [http://www.fao.org/docrep/x1372T/x1372t07.htm](http://www.fao.org/docrep/x1372T/x1372t07.htm) accessed 17/11/17
Zambia has had the experience of both freehold and leasehold tenure. Customary tenure has by and large been more successful than leasehold tenure in meeting the needs of the people. The administrative procedures are simple and easily implemented. Land issues are dealt with efficiently and decisively. The problem, however, is that the land rights are never registered, although their recognition is guaranteed. No attempt has been made to reform customary tenure. In general, the least productive land in Zambia is held under customary tenure by small farmers while the most productive land is leased for commercial farms, mining operations, and urban and tourism developments. Detailed information was collected from each of the sites visited, including land ownership/tenure issues (refer Appendix One – Consultation and field visit data). Almost in all the sites visited across the 16 targeted districts, land for the existing and potential irrigation infrastructure was under traditional land tenure. Consent was given by the Chiefs and the Headmen who administer land rights under the customary leasehold, therefore there will be no compensation required (including for rights of way for pipes, canals etc). In this regard, consent letters were obtained for most sites.

Indigenous Peoples

In Zambia, there are no indigenous groups. The local people are referred to as communities who are part of the beneficiaries in the proposal (i.e. Small-Scale Farmers).

In addition, heritage areas in Zambia are protected by government and cannot be used as farm lands. For instance, Ing’ombe Iled Heritage site in Siavonga district is a protected site (heritage) and is protected by government. No farming activities take place there.

During field investigations and site selection, any potential cultural heritage sites were avoided.

1.4 OVERVIEW OF INSTITUTIONAL ARRANGEMENTS FOR THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK PLAN

The ESMF will be assessed for each sub-project by the MoA and UNDP prior to any works being undertaken. The ESMF identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimising undesirable environmental and social impacts. Further, the ESMF provides a Grievance Redress Mechanism for those that may be impacted by the projects that do not consider their views have been heard.

The MoA will be responsible for the supervision of the ESMF. The UNDP with gain the endorsement of the MoA and will ensure the ESMF is adequate and followed. The PMU will ensure timely remedial actions are taken by the contractor where necessary.

Administration

The MoA will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is updated.

The site supervisor will be responsible for daily environmental inspections of the construction site. The MoA will cross check these inspections by undertaking monthly audits.

The contractor will maintain and keep all administrative and environmental records which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

The contractor will be responsible for the day to day compliance of the ESMF.

The MoA will be the implementing agency and will be responsible for the implementation and compliance with the ESMF via the collaborating partners and contractors. The ESMF will be part of any tender documentation.

3 [https://land-links.org/country-profile/zambia/]
The Supervising Engineer/Project Manager will supervise the contractor, while the MoA will be responsible for environment and social issues.

Capacity Building

The project includes a number of activities focussed on capacity building. Training and awareness raising is proposed for both government, NGOs, CBOs and farmers. Women will be targetted in the training.

To assist in sustainable knowledge transfer, capacity building will include ‘train the trainer’ so that others can continue to be trained.
1.5 Legislation, Policies and Regulations

The following GoZ legislation is relevant to the project:

**Zambian Constitution 1996:** The Zambian Constitution (as amended by Act Number 18 of 1996), does not specifically state that citizens have the right to a clean and healthy environment. However, it pledges:

“…..to ourselves that we shall ensure that the State shall respect the rights and dignity of the human family, uphold the laws of the State and conduct the affairs of the State in such a manner as to preserve, develop, and utilize its resources for this and future generations”.

The project complies with the Constitution.

**Environmental Management Act 2011:** The principal legislation governing environmental management in Zambia is the Environmental Management Act 2011 (EMA). The EMA provides for the sustainable management of natural resources and protection of the environment, and the prevention and control of pollution. Of particular relevance is section 29 of the Act which states that

“A person shall not undertake any project that may have an effect on the environment without the written approval of the Agency, and except in accordance with any conditions imposed in that approval”.

The Act also provides for public participation in decision-making and access to environmental information. The EMA and its regulations provide the overall environmental regulatory framework for the project.

**Environmental Protection and Pollution Control, (Environmental Impact Assessment) Regulations 1997:** The Environmental Impact Assessment Regulations (EIA Regulations) under the EMA requires that before a developer commences implementing a project, an EIS be prepared and submitted to the relevant regulatory authority for review and approval. With respect to the project, the following may be relevant:

- First Schedule (Regulations 3(2)) lists projects that require Project Briefs, 11n): Pumped Storage schemes is potentially relevant.
- Second Schedule (Regulation 7(2)) Projects which require EIA; potentially relevant to project are:
  - 3. Dams, rivers and Water Resources
    - a) Dams and barrages: covering a total of 25ha or more
    - b) Exploration for, and use of, groundwater resources including production of geothermal energy: water to be extracted to be more than 2 million cumecs (m3/s)
  - 5. Forestry Related Activities
    - b) Reforestation and afforestation
  - 6. Agriculture
    - a) Land clearance for large scale agriculture.
    - b) Introduction and use of agrochemical new in Zambia.
    - c) Introduction of new crops and animals especially exotic ones new to Zambia.
    - d) Irrigation schemes covering an area of 50 Ha or more.
    - e) Fish farms: production of 100 tonnes or more a year.
    - f) Aerial and ground spraying
  - 10. Nature Conservation Areas
    - c) Introduction of alien species of flora and fauna to local ecosystems
Fees apply for assessment of Project Briefs and EIAs and are listed in Fifth Schedule (Regulation 37).

**Lands Acquisition Act 1994**: Section 12 (b) of the Lands Acquisition Act 1994 provides that any person whose property is affected by a public project is entitled to compensation. The Act also provides a mechanism by which people not satisfied with compensation may seek redress through the courts of law. S 12 (b) states:

“The value of property shall, subject as hereinafter provided, be the amount which the property might be expected to realize if sold in the open market by a willing seller at the time of publication under section seven of the notice to yield up possession”.

The basis for assessment of compensation includes:

- Enhancement of value of land by reason of proximity of any improvements or works made or constructed on part acquired; and
- Damage if any, sustained by the person having an estate or interest in land by reason of severance of such land.

Land compulsory land acquisition is anticipated as part of the project; however the Act provides one avenue for grievance redress.

**Bio Safety Act 2007**: This Act applies to the import, development, export, research, transit, contained use, release or placing on the market of any genetically modified organism whether intended for release into the environment, for use as a pharmaceutical, for food, feed or processing, or a product of a genetically modified organism.

No GMO are proposed as part of the project, therefore the Act will not be triggered.

**Fisheries Act 2011**: The Act provides for the appointment of the Director of Fisheries and fisheries officers and provide for their powers and functions; promote the sustainable development of fisheries and a precautionary approach in fisheries management, conservation, utilization and development; establish fisheries management areas and fisheries management committees; provide for the regulation of commercial fishing and aquaculture; establish the Fisheries and Aquaculture Development Fund; and provide for matters connected with, or incidental to, the foregoing.

Section 40(1) prohibits a person from engaging in aquaculture without license and states:

Subject to section 41, a person shall not engage in aquaculture except in accordance with this Act and under the authority of a license issued under this Act.

Section 45 is relevant to EIA and states:

A person who intends to engage in aquaculture shall conduct an environmental impact assessment in accordance with the provisions of the Environmental Management Act, 2011, and prepare a report thereon for the purposes of this Act.

The trigger for an EIA under the Act is 400 tonnes or more output from the fish farm. The fish farms proposed under this project are not anticipated to exceed the trigger value.

**Forests Act 1999**: The Act is the main legal instrument for the establishment, control, utilization and management of forests. The Act provides for the establishment of the Zambia Forestry Commission as an autonomous semi-government arm charged with the responsibility of facilitating the management of forest resources in partnership with the local communities and the private sector. It provides for the participation of local communities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management, the conservation and use of forests and trees for the sustainable management of forest ecosystems and biological diversity. It also provides for the implementation of the Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance Especially as Water Fowl Habitat (RAMSAR Convention); the Convention on Biological Diversity (CBD) and the Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa.

If rare trees and other flora species specified in the Act are identified within the project area, they will be conserved and protected without being impacted in anyway.
Occupational Health and Safety Act 2010: The Act establishes the Occupational Health and Safety Institute and provide for its functions; provide for the establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; provide for the duties of manufacturers, importers and suppliers of articles, devices, items and substances for use at work; provide for the protection of persons, other than persons at work, against risks to health or safety arising from, or in connection with, the activities of persons at work; and provide for matters connected with, or incidental to, the foregoing.

Section 16 provides the duties of employers at workplaces in respect of health and safety at workplaces. These duties include:

(a) ensure, so far as is reasonably practicable, the health, safety and welfare of the employees of the employer at a workplace; and

(b) place and maintain an employee in an occupational environment adapted to the employee’s physical, physiological and psychological ability.

To this end, UNDP and MoA will ensure that information, instruction, training and supervision are provided to ensure the health and safety of the employees at their workplaces and assist other project employers and workers to understand their legal responsibilities.

The National Heritage Conservation Commission Act 1986: The NHCC Act provides for the conservation of ancient, cultural and natural heritage, relics and other objects of aesthetic, historical, pre-historical, archaeological or scientific interest. In the event that any artefact is found, National Heritage and Conservation Commission (NHCC) will be notified. In this case section 37(1) of the Act shall apply which states:

“Any person who desires to excavate any ancient heritage or collect relics shall apply to the Commission for a permit to excavate or collect.”

Public Health Act 1930: This Act provides for the prevention and suppression of diseases and the general regulation of all matters connected with public health in Zambia. Amongst other things, the Act prohibits anyone from causing a nuisance, where nuisances are given to include:

- The pollution of potable water;
- Any collection of water or any cesspit, latrine or urinal found to contain mosquito larvae;
- Any collection of water, sewage or waste which permits or facilitates the breeding of parasites, insects or other agents which may lead to the infection of people or domestic animals;
- The accumulation or deposit of waste which is offensive or injurious or dangerous to health;
- The discharge or noxious matter or waste water into a water course not approved for the reception of such discharge;
- Premises without sufficient lighting or ventilation;
- Dangerous buildings and overcrowded premises; and
- Factories giving rise to smells and effluents which are offensive or dangerous to health.

The project team will work hard in hand with the relevant local authorities to ensure that the public and the employees are not endangered at all.

Water Resources Management Act 2011: The Act was promulgated to establish the Water Resources Management Authority (WRMA) and define its functions and powers; provide for the management, development, conservation, protection and preservation of water resource and its ecosystems; provide for the equitable, reasonable and sustainable utilization of the water resource; ensure the right to draw or take water for domestic and non-commercial purposes, and that the poor and vulnerable members of the society have an adequate and sustainable source of water free from any charges; create an enabling environment for adaptation to climate change; provide for the constitution, functions and composition of catchment councils, sub-catchment councils and water users associations; provide for international and regional co-operation in, and equitable and sustainable utilization of, shared water resources; provide for the domestication and implementation of the basic principles and rules of international law relating to the environment and shared water resources as specified in the treaties, conventions and agreements to which Zambia is a State Party.
The legislation also provides for the sustainable utilization of the water resource and provides for the right to draw or take water for domestic and non-commercial purposes. The Act requires that a person who intends to drill a borehole informs the Authority before any construction begins. The Act further demands that commercial abstraction of water be done with the permission of the Authority.

The Act also requires that any defective borehole which encounters brackish water or other substances, shall be securely cased, plugged, or sealed off by the owner of the borehole so that the brackish water or other substance shall be confined to the strata in which it was found.

The Act specifies which activities do not require permits:

“Subject to the requirements, limitations and conditions specified by, or under, the Act, a permit shall not be required for:

a) the use of water, from any water resource, for domestic and non-commercial purposes by a person having lawful access to it;
b) the development or use of ground water for domestic and non-commercial purposes;
c) the harvest of any rain water from any facility not specified in paragraph (g) of section 71;
d) the investigation of the presence of water in any aquifer of the quality or quantity of ground water; or
e) ascertaining the effect of using water from any borehole or water works or the level of water in any other borehole or water works on any water resource.”

Section 71 of the Act lists activities where permits are required:

“Subject to this Act, a person who intends to—

a) use water for purposes specified under section 60, other than for the domestic purposes specified under section 70,
b) construct, acquire any water works, impound, supply or distribute water from any water works or borehole to any other person;
c) de-water any mine, quarry or water works;
d) drain any swamp, marsh, dambo, wetland, re-charge area or other land;
e) construct or acquire any water works for the purpose of draining into, conserving or utilizing, in any manner whatsoever, water from a water resource;
f) construct water works necessary to restore the course of a water resource that has changed its course;
g) harvest any rainwater by means of a dam, weir or barrage that is on a water resource;
h) conduct any operation that would interfere with the bank or course of a watercourse;
i) sink, deepen or alter any borehole for any purpose in a water shortage area; or
j) carry out any activity in relation to a water resource as may be prescribed; shall apply for a permit and pay such charges, for the use of the water, as may be prescribed.”

In conformity with the Act, project activities that fall into the categories above (abstraction of the water from boreholes, waterway works, dams, weirs) will be done under license and specifications obtained from the WRMA.

Zambia Wildlife Act 1998: The Act established the Zambia Wildlife Authority and defines its functions; to provide for the establishment, control and management of National Parks and for the conservation and enhancement of wildlife eco-systems, biodiversity, and of objects of aesthetic, pre-historic, historical, geological, archaeological and scientific interest in National Parks; and for the promotion of opportunities for the equitable and sustainable use of the special qualities of National Parks; to provide for the establishment, control and management of Game Management Areas; to provide for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; to enhance the benefits of Game Management Areas both to local communities and to wildlife; to involve local communities in the management of Game Management Areas; to provide for the development and implementation of management plans; to provide for the regulation of game ranching; to provide for the licensing of hunting and control of the processing, sale, import and export of wild animals and trophies; to provide for the implementation of the Convention on International Trade in Endangered Species of Wild Flora and
Fauna and Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora, the RAMSAR Convention, and the CBD.

None of the project activities are proposed within National Parks, nor adverse impacts to wildlife expected.

**Agricultural Credits Act 2010:** The Act established the Warehouse Licensing Authority and provide for its functions and powers; facilitate the borrowing of money on the security of charges created on farming stock and other agricultural assets; provide for the registration of charges; provide for the certification of warehouses; provide for the issuance and negotiation of warehouse receipts and the rights conferred by warehouse receipts; provide for the rights and obligations of warehouse operators; repeal and replace the Agricultural Credits Act, 1995; and provide for matters connected with, or incidental to, the foregoing. Any warehouses developed as part of the project will be subject to the Act and will require certification.

The project will be utilizing and possibly setting up warehouses, therefore this Act is relevant.

**Agriculture (Fertilisers and Feed) Act 1970:** The Act provides for the regulation and control of the manufacture, processing, importation and sale of agricultural fertilisers; to provide for minimum standards of effectiveness and purity of such fertilisers; and to provide for matters connected with, or incidental to, the foregoing.

**Agricultural Lands Act 1960:** The Act established the Agricultural Lands Board; and prescribes the composition and membership, along with the powers and functions. The Act also provides for tenant farming schemes; and to provide for matters incidental to or connected with the foregoing. Section 40 of Act identifies improvements qualifying for compensation to include:

- Planting of orchards or fruit bushes;
- Improvement to watercourses for water supply – domestic and agricultural;
- Boreholes/wells, ponds; and
- Erection, alteration and enlargement of building.

If an assessment determines that private agricultural land is affected, the Act will be taken into consideration.

**The Local Government Act 1991:** The Act provides for the establishment of Councils in districts, the functions of local authorities and the local government system of which some of the functions relate to pollution control and protection of the environment in general. Ss 69 and 70 of the Act give powers to Councils to impose levies on property, business or commodity as well as fees, respectively. The Councils are also given powers in s 76 to impose by laws for the good rule and government of their jurisdiction and, more particularly:

- for controlling any of the things which, and any of the persons whom, it is empowered by or under this Act to control; and
- for providing for the issue or supply of licences permits, certificates and other instruments and documents.

Any approvals required to be sourced from the local authority will be sought.

**Dairy Industry Development Act 2010:** The Act was enacted to develop an efficient and self-sustaining dairy industry that will effectively contribute towards poverty alleviation, household food security and employment creation; establish the Dairy Industry Development Board and provide for its functions and powers; enhance milk production in order to fully utilise the capacity of processing facilities, so as to achieve growth in the processing of safe and wholesome high value milk products; provide for the processing, manufacturing, marketing and distribution of milk; ensure collaboration and participation of all stakeholders within the dairy industry and provide a wider service to farmers in the dairy industry; promote self-regulation of the dairy industry through the development and use of codes of practice. This Act is relevant as the project is promoting dairy farming and seeking to strengthen value chains.

**Noxious Weeds Act:** The Act provides for the eradication of noxious weeds. Under the Act, the Minister may, by regulation, prohibit or restrict the importation, distribution, conveyance or sale of any noxious weed or any part thereof or of any seed with which the seed of any particular Noxious
Weeds has become mixed and such regulations may prescribe the powers and duties of officers in relation to the enforcement of such regulations.

This Act is relevant as the project includes supply of seed.

**Plant Pests and Diseases Act 1959:** The Act provides for the eradication and prevention of the spread of plant pests and diseases in Zambia, for the prevention of the introduction into Zambia of plant pests and diseases, and for matters incidental thereto.

**Plant Variety and Seeds Act 1968:** The Act provides for the regulation and control of the production, sale and import of seed for sowing and of the export of seed, and to provide for the testing and for minimum standards of germination and purity thereof, and further to provide for the certification of seed and for matters incidental to or connected with the foregoing.

Registration will be required for imports, producers, sellers and/or cleaners of seed. Licences are required for seed importers and sellers. This Act affects the project in that seed will need to be sourced through licensed operators.

**Prevention of Cruelty to Animals Act 1921:** The Act provides for the prevention of cruelty to animals; to specify acts and omissions which amount to cruelty and penalties therefor; to prescribe the powers of police officers; and to provide for matters incidental thereto.

The proposed project activities will not cause cruelty to animals. The project will comply with this law and include appropriate behaviour towards animals as part of the training packages on agricultural practices.

**The National Policy on Environment:** The National Policy on Environment is designed to create a comprehensive framework for effective natural resource utilization and environmental conservation. The Policy is also sensitive to the demands of sustainable development

### 1.6 Multilateral Agreements and Biodiversity Protocols

Zambia is a signatory to a number of international and regional agreements and conventions, which are related to the environment. They include: the CBD, the associated Catagena Protocol, and the African Forest Law Enforcement and Governance Agreement, are associated regulatory frameworks that have domesticated application through the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora, the Food and Agriculture Organisation (FAO) Code of Conduct for Responsible Fisheries and Aquaculture, the SADC Protocol on Fisheries, the SADC Protocol on Shared Water Bodies, the SADC Treaty on Management of Watercourse Systems, and the Ramsar Convention (IAPRI 2015).
IMPLEMENTATION AND OPERATION

1.7 GENERAL MANAGEMENT STRUCTURE AND RESPONSIBILITIES

A high-level project management structure is shown in Figure 3. The key roles are discussed below.

Figure 3 Project organisation structure

Project Board and sub-committee

The Project Board/Steering Committee is comprised of MoA (Secretariat), Ministry of National Development Planning, Ministry of Land, Natural Resources and Environmental Protection (MLNREP), Office of the Vice President, Ministry of Gender, Ministry of Communications and Transport (MCT), Ministry of Water Affairs, WRMA, University of Zambia, Private Sector representative, Peasant Farmer Association, UNDP, FAO and WFP.

The Project Board/Steering Committee is responsible for making, by consensus, management decisions when guidance is required by the PMU, namely the Project Manager. Project Board decisions will be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Manager. The Project Board will meet twice a year.

A Technical sub-committee, comprising of National Project Director (MoA), Responsible Parties, and Project Team will be delegated to provide more regular and periodic (monthly) guidance and implementation support to the PMU. UNDP will participate in sub-committee meetings in its oversight capacity as and when needed.
Implementing Partner and Responsible Parties

The Implementing Partner for this project is the MoA. The MoA is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources.

The following parties have entered into agreements with MoA to assist in successfully delivering project outcomes and are directly accountable to the MoA as outlined in the terms of their agreement: MCT, ZMD, the Department of Water Affairs, the WARMA, the FAO, and the World Food Programme.

National Project Management Unit

The PMU will be established under the MoA. The PMU will include the key roles identified in the organisation chart, in particular the Project Manager.

The Project Manager will run the project on a day-to-day basis on behalf of the MoA within the constraints laid down by the Project Steering Committee. The Project Manager’s function will end when the final project terminal evaluation report and other documentation required by the GCF and UNDP, has been completed and submitted to UNDP. The Project Manager is responsible for day-to-day management and decision-making for the project. The Project Manager’s prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

Project Assurance

The ‘project assurance’ function of UNDP is to support the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the Project Manager; therefore, the Steering Committee cannot delegate any of its assurance responsibilities to the Project Manager. Furthermore, as the Senior Supplier, UNDP provides quality assurance for the project; ensures adherence to the NIM guidelines and ensures compliance with GCF and UNDP policies and procedures.

A UNDP Programme Officer, or M&E Officer, typically holds the Project Assurance role on behalf of UNDP.

1.8 PROJECT DELIVERY AND ADMINISTRATION

Project Delivery

The project will be delivered on the ground via the Ministry of Agriculture’s existing structures at the district, block and camp level. At the District level, the District Agricultural Coordination Office (DACO) and the Senior Agricultural Officer (SAO) will be the main focal point, and shall be responsible for coordination of all technical issues at the district level (e.g. met officer, forestry officer, water officer, livestock officer, etc.) who will contribute to the delivery of the project impact. The District Agricultural Coordination Office will also coordinate directly with the District Development Coordinating Committee (DDCC), made up of representatives from all key sectors at district level.

The District Agricultural Coordination Office will be supported by a research assistant in each of the district offices. There will also be two I/UNVs based at the district level to support the districts directly. These officers, who will be budgeted for the lifetime of the project, will help to strengthen capacity at the district-level to deliver, monitor and report on activities.

116. The Block Extension Officer (BEO) will report to the Senior Agricultural Officer (SAO), and provide backstopping support to the Camp Extension Officer (CEO). The camp officer will coordinate and implement activities at the camp and region level, and provide direct support to farmers. He/she will report to the SAO through the BEO.
Administration of Environmental and Social Management Framework

As the implementing agency, MoA will be responsible for the implementation with the ESMF via the delivery organisations.

The ESMF will be part of any tender documentation. The MoA will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is the most up to date version.

The UNDP and MoA are accountable for the provision of specialist advice on environmental and social issues to the delivery organisations (eg contractors and/or NGOs) and for environmental and social monitoring and reporting. The MoA or its delegate will assess the environmental and social performance of the delivery organisations (eg contractors) in charge of delivering each component throughout the project and ensure compliance with the ESMF. During operations, the delivery organisations will be accountable for implementation of the ESMF. Personnel working on the projects have accountability for preventing or minimising environmental and social impacts.

UNDP commits to ensuring written commitments on consent by the community are secured once the project starts and before any infrastructure is built.

The Camp Officer will be responsible for daily environmental inspections of the project/construction site. The MoA or its delegate will cross check these inspections by undertaking monthly audits.

The delivery organisation eg contractor will maintain and keep all administrative and environmental records, which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

The delivery organisation will be responsible for the day to day compliance of the ESMF.

Camp Extension Officer

The MoA camp officer is responsible for ensuring compliance with the ESMF. The camp officer will provide advice on effective environmental management of the project to all project site personnel. The camp officer is to also ensure the environmental awareness of project personnel is maintained through appropriate training. A compliance report on mitigation measures will be submitted to the Project Manager by the camp officer. An independent review of the compliance may be undertaken during delivery/construction and post-construction where deemed necessary.

Environmental procedures, site and activity-specific work plans/instructions

Environmental procedures provide a written method describing how the management objectives for a particular environmental element are to be obtained. They contain the necessary detail to be site or activity-specific and are required to be followed for all construction works. Site and activity-specific work plans and instructions are to be issued and will follow the previously successful work undertaking similar projects by the UNDP, African Development Bank, IUCN and World Bank.

Site/activity specific work plans and instructions will be prepared prior to works commencing. They will be prepared by DACO or their delegate. Such plans would form part of tender packages where appropriate.

Environmental incident reporting

Any incidents, including non-conformances to the procedures of the ESMF are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or serious environmental harm, the camp officer shall notify the Project Manager as soon as possible. The delivery organisation/contractor must cease work until remediation has been completed as per the approval of MoA.
Daily and weekly environmental inspection checklists

A daily environmental checklist is to be completed at each work site by the relevant camp officer and maintained within a register. A weekly environmental checklist is to be completed and will include reference to any issues identified in the daily checklists completed by the camp officers. The completed checklist is to be forwarded to MoA for review and follow-up if any issues are identified.

Corrective Actions

Any non-conformances to the ESMF are to be noted in weekly environmental inspections and logged into the register. Depending on the severity of the non-conformance, the camp officer may specify a corrective action on the weekly site inspection report. The progress of all corrective actions will be tracked using the register. Any non-conformances and the issue of corrective actions are to be advised to MoA.

Review and auditing

The ESMF and its procedures are to be reviewed at least every two months by UNDP staff and MoA. The objective of the review is to update the document to reflect knowledge gained during the course of project delivery/construction and to reflect new knowledge and changed community standards (values).

The ESMF will be reviewed and amendments made if:

- There are relevant changes to environmental conditions or generally accepted environmental practices; or
- New or previously unidentified environmental risks are identified; or
- Information from the project monitoring and surveillance methods indicate that current control measures require amendment to be effective; or
- There are changes to environmental legislation that are relevant to the project; or
- There is a request made by a relevant regulatory authority; or
- Any changes are to be developed and implemented in consultation with UNDP Staff and MoA.
When an update is made, all site personnel are to be made aware of the revision as soon as possible eg through a tool box meeting or written notification.

1.9 TRAINING

Delivery organisations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMF.

All project personnel will attend an induction that covers health, safety, environment and cultural requirements.

All workers engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.
1.10 PUBLIC CONSULTATION AND ENVIRONMENTAL AND SOCIAL DISCLOSURE

The ESMF includes public consultation as part of the stakeholder engagement plan. The project was discussed with a wide range of stakeholders including relevant government departments, industry groups, NGOs, and individual community members and approved by Government. Extensive on-ground consultation has been undertaken during the design of the project (as well as during the earlier projects that this project is aiming to upscale) and it is expected that consultation with any affected communities will continue. It is anticipated that based on the communities’ needs, the projects will be fully accepted.

The UNDP and MoA will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media eg print, radio, social media or formal reports. A publicized telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and the local languages as appropriate.

Where there is a community issue raised, the following information will be recorded:

- time, date and nature of enquiry, concern, complaints and/or grievances;
- type of communication (e.g. telephone, letter, personal contact);
- name, contact address and contact number;
- response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and
- actions taken and name of the person taking action.

Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated and a response given to the complainant in a timely manner. A grievance redress mechanism has been included in the ESMF to address any complaints that may not be able to be resolved quickly.

Nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

1.11 COMPLAINTS REGISTER AND GRIEVANCE REDRESS MECHANISM

During the construction and implementation phases of any project, a person or group of people can be adversely affected, directly or indirectly due to the project activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as excessive dust generation, damages to infrastructure due to construction related vibrations or transportation of raw material, noise, traffic congestions, decrease in quality or quantity of private/ public surface/ ground water resources during irrigation rehabilitation, damage to home gardens and agricultural lands etc.

Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a grievance redress mechanism has been included in ESMF for this project.

The project allows those that have a complaint or that feel aggrieved by the project to be able to communicate their concern, complaints and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism set out in this ESMF are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.
While recognising that many complaints may be resolved immediately, the Complaints Register and Grievance Redress Mechanism set out in this ESMF encourages mutually acceptable resolution of issues as they arise. The Complaints Register and Grievance Redress Mechanism set out in this ESMF has been designed to:

a. be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;
b. allow simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;
c. provide clear and known procedures for each stage of the Grievance Redress Mechanism process, and provides clarity on the types of outcomes available to individuals and groups;
d. ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a concern, complaints and/or grievances;
e. to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and
f. enable continuous learning and improvements to the Grievance Redress Mechanism. Through continued assessment, the learnings may reduce potential complaints and grievances.

Eligibility criteria for the Grievance Redress Mechanism include:

a. Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;
b. clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and
c. individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and or group that have been or may potentially be impacted on to represent their interest.

Local communities and other interested stakeholders may raise a grievance/complaint at all times to the local MoA representative, PMU, or UNDP. Affected local communities should be informed about the ESMF provisions, including its grievance mechanism and how to make a complaint.

Complaints Register

Where there is a community issue raised, the following information will be recorded:

A complaints register will be established as part of the project to record any concerns raised by the community during construction. Any complaint will be advised to the UNDP and MoA within 24 hours of receiving the complaint. The complaint will be screened. Following the screening, complaints regarding corrupt practices will be referred to the UNDP for commentary and/or advice along with the GoZ’s Anit-Corruption Commission.

Wherever possible, the project team will seek to resolve the complaint as soon as possible, and thus avoid escalation of issues. However, where a complaint cannot be readily resolved, then it must be escalated.

A summary list of complaints received and their disposition must be published in a report produced every six months.

Grievance Redress Mechanism

The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint
and/or grievance, all parties must act at all times, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.

The Office of the Public Protector Zambia is a Parliamentary Ombudsman’s Office mandated to represent public interest by offering all citizens a free, accessible, prompt, objective and impartial platform for redress of their grievances against public institutions and officers with respect to the manner in which they conduct their official duties.

The Public Protector may among other things:

- Investigate an action or decision taken or omitted to be taken by a State Institution in the performance of an administrative function;
- Bring an action before a Court;
- Hear an appeal by a person relating to an action or decision taken or omitted to be taken in respect of that person; and
- Make a decision on an action to be taken against a public Officer or Constitutional Office holder, which decision shall be implemented by an appropriate authority.

As of 5th January 2016, the functions of the Ombudsman of Zambia that were carried out by the Office of the Investigator General have been inherited by the Office of the Public Protector. However, the Commission for Investigations continues to carry out its function as a secretariat for the Public Protector and complaint handling body under the auspices of Chapter 39 of the Laws of Zambia. Local communities and other interested stakeholders may raise a grievance/complaint at all times to the Office of Public Protector.

This newly formed authority has yet to set up Provincial or District offices, but can be contacted at: Plot 4623 Mwaimwena Road Rhodespark, Lusaka (Opposite Jacaranda Basic School); by phone +260 211 228330; or via Facebook [https://www.facebook.com/officeofthePublicProtector-Zambia]

Prior to lodging a complaint before the Public Protector, a complainant must take all the reasonable steps possible to exhaust the available administrative channels available within a public entity.

In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP’s Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP's Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations, and managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request a Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance, and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Visit [www.undp.org/secu-srm](http://www.undp.org/secu-srm) for more details. The relevant form is attached at the end of the ESMF.
KEY ENVIRONMENTAL AND SOCIAL INDICATORS

This section identifies the key environmental and social indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental performance criteria against which these indicators will be judged (i.e. audited).

This section further addresses the need for monitoring and reporting of environmental performance with the aim of communicating the success and failures of control procedures, distinguish issues that require rectification and identify measures that will allow continuous improvement in the processes by which the projects are managed.

1.12 ECOLOGY

Terrestrial biomes

Zambia has a rich biodiversity with over 14 distinct ecosystems (ECZ, 2008). Based on Figure 4, it can be seen that the primary terrestrial biomes present in the provinces that the projects are being undertaken in are:

- Central Zambian Miombo Woodlands;
- Zambian and Mopane Woodlands; and
- Southern Miombo Woodlands.

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The following provides some detail on the biomes that can be found in the Provinces and Districts of the target areas. The numbers refer to locations shown on Figure 4.

**Tropical and subtropical grasslands, savannas, and shrublands biome**

Most of Zambia (around 80%) is in this extensive biome. Six ecoregions are represented of which the first four listed below are woodland savannas, consisting of a grass cover 1–2 m high, and hardwood deciduous trees and/or hardwood shrubs, which range in ground coverage from ‘scattered’ to ‘abundant’. Leguminous tree species dominate, which are deciduous, losing leaves in the dry season and producing a flush of new leaves, often reddish, just before the onset of the rains. In higher rainfall areas of Zambia, the proportion and size of trees are at the higher extreme for this biome, with a canopy covering up to 40% of the ground and trees often exceeding 10 m in height. However, except in the case of the last ecoregion listed, even where the canopy is extensive, at ground level the woodland is relatively open, affording quite easy passage by animals and people.

**Central Zambezian Miombo woodlands**

The most extensive ecoregion covering about 50% of the country, characterised by Miombo trees (*Brachystegia sp.*), a member of the legume family. This ecoregion predominates in the wettest part of the country, across the northern part of both ‘lobes’ of the country. On the flat central African plateau, the woodland is interspersed with dambos, grassy wetlands forming the headwaters and margins of rivers which may make up to 30% of the ecoregion and which increase biodiversity of the ecoregion. The ecoregion has suffered extensive deforestation, especially in the highly urbanised Copperbelt Province due to charcoal production and clearing for farming, the centre of Central Province (for farming and ranching), and around Kasama and Mansa (charcoal production and chitemene farming). It covers:

- Northern Province except flooded grassland areas and Luangwa valley slopes;
- Luapula Province except flooded grassland areas;
- Copperbelt Province except for flooded grassland areas in the south-west;
- North-Western Province except the Busanga area and far west;
- the eastern part of Western Province;
- northern parts of Central Province; and
- Kafue National Park in Central and Southern Provinces, except the north-west corner (Busanga Swamps and plain) in North-Western Province (also the western part).

**Southern Miombo woodlands**

Covering about 15% of the country in the south, and dryer than the Central Zambezian ecoregion, trees in this ecoregion are more scattered and generally smaller, and the relative proportion of woody shrubs is greater. Dambos are fewer. Much of the ecoregion in Southern Province (sometimes referred to as the Southern Plateau) and the south-east of Eastern Province (sometimes referred to as the Eastern Plateau) has been cleared for farming and ranching. The main sites are:

- the Southern Plateau in Southern Province (the largest commercial farming area of the country);
- Lusaka Province except areas close to the Zambezi, Lunsemfwa and Kafue rivers;
- the Muchinga escarpment in Central and Northern Provinces; and

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most of Eastern Province, except for the bottom of the Luangwa Valley and a patch of plateau around Petauke.

Zambezian and Mopane woodlands

The Mopane tree Colophospermum mopane is also a legume and grows in hotter locations than the miombo species, and so Mopane woodlands, covering about 15% of the country, replace southern miombo woodlands at lower elevations in valleys in the south of the country, principally:

- along the Zambezi and Kariba valleys east of the Caprivi Strip, southern part of Lusaka Province and Lower Zambezi National Park;
- along the bottom of the Lunsemfwa and Luangwa valleys including North and South Luangwa National Parks closer to the river;
- in a strip running north of the Kafue Flats in Central Province;
- in a strip running south of the Kafue Flats in Southern Province; and
- in a strip running from the Kafue Flats to the Caprivi Strip.

Zambezian Baikiaea woodlands

This ecoregion, covering about 5% of Zambia in the south-west, is dominated by Baikiaea plurijuga, Zambian teak. It is well adapted to hot dry areas on sandy soils, and forms extensive forests which have been over-exploited by commercial timber production over the past 75 years, in southern part of Western Province and south-west of Southern Province (Mulobezi teak forests), and the sandy plains west and south west of the Barotse floodplain, interspersed with grasslands.

1.12.1.1 Flooded grasslands and savannas biome

This biome is represented by one ecoregion. As a country with very distinct rainy and dry seasons, with a high rainfall in the former, and having a fairly flat topography, Zambian rivers and low-lying areas are prone to flooding, and there are extensive permanent swamps. Around 10% of the country is in this biome and its sole ecoregion. Plants, animals and people have evolved to this cycle which in Zambia has been fairly reliable, and it brings a number of ecological advantages which promote biodiversity. The role of termites in building mounds which remain above most of the flood is important as this provides habitats for plants less tolerant of waterlogging, as well as safe breeding sites for birds and some animals.

Zambezian flooded grasslands

The eight sites listed below form a broad chain running from south-west to north-east. The chain extends into Namibia and Botswana at one end (Caprivi wetlands and Okavango Swamp) and to Tanzania and Kenya at the other. This chain is exploited by birds in their migration and in former times, animals also migrated along the chain. The main sites are:

- Barotse floodplain, Luanginga River floodplain and Luena Flats, in Western Province;
- Bangweulu Swamps and floodplain, Northern and Luapula Provinces;
- Kafue Flats, Central and Southern Provinces;
- Lukanga Swamp and floodplains of the Kafue and its tributaries in Central Province and south west Copperbelt Province;
- Lake Mweru Wantipa/Mweru Marsh floodplain, Northern Province;
- Busanga Swamps and plain, Kafue National Park, North Western Province;
- Upper Chambeshi River floodplain, Northern Province; and
- Luapula Swamps south of Lake Mweru, Luapula Province
Performance Criteria

The following performance criteria are set for the construction of the projects:

- no clearance of vegetation outside of the designated clearing boundaries;
- no death to native fauna as a result of clearing activities;
- no deleterious impacts on aquatic environments and terrestrial habitats;
- no introduction of new weed species as a result of construction activities and through the planting of seeds that are adapted to climate change;
- no increase in existing weed proliferation within or outside of any project footprint as a result of construction activities; and
- Increased biodiversity as a result of interventions.

Monitoring

A flora and fauna monitoring program will be implemented (Table 6).

Seed supplier certification will be required and records provided with seed. Weed monitoring will be undertaken and appropriate action taken in the event of alien or noxious species being identified.

Condition and biodiversity of areas for reforestation, afforestation or closure will be assessed prior, during and after interventions to detect and record changes.

The delivery organisation will be undertaking works, will compile a weekly report to MoA outlining:

- any non-conformances to this ESMF;
- the areas that have been rehabilitated during the preceding week; and
- details of the corrective action undertaken.

Reporting

All flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The MoA must be notified in the event of any suspected instances of death to native fauna and where vegetation if detrimentally impacted
### Table 6 Flora and Fauna Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF1. Habitat loss and disturbance of fauna</td>
<td>FF1.1 Limit vegetation clearing and minimise habitat disturbance through adequate protection and management of retained vegetation.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF1.2: Minimise noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF1.4 Minimise disturbance to on-site fauna and recover and rescue any injured or orphaned fauna during construction and operation.</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records, report</td>
</tr>
<tr>
<td></td>
<td>FF1.5: Prevention of fire – no burning of waste on-site</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records, report</td>
</tr>
<tr>
<td></td>
<td>FF1.6: Monitoring of bio condition of intervention areas</td>
<td>All phases</td>
<td>Camp Officer</td>
<td>Bi-annually and maintain records</td>
</tr>
<tr>
<td>FF2. Introduced flora and weed species</td>
<td>FF2.1: Implement an ESCP to reduce the spread of weeds through erosion and sediment entering any waterways and therefore spreading.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.2: Revegetate disturbed areas using native and locally endemic species that have high habitat value.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>As required and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.3: Minimise disturbance to mature remnant vegetation, particularly canopy trees.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.4: Seed is to be weed free - source seed from certified warehouses</td>
<td>Operation</td>
<td>Camp Officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control Activity (and Source)</td>
<td>Action Timing</td>
<td>Responsibility</td>
<td>Monitoring and Reporting</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>FF2. Introduced flora and weed species</td>
<td>FF2.5: Vegetation to be removed shall be clearly marked using paint or flagging tape.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.6: Environmental weeds and noxious weeds within the project footprints shall be controlled.</td>
<td>During and post construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td>FF3: Disruption to fish movement /migration</td>
<td>FF3.1: Weirs to allow flood flows to overtop</td>
<td>Design</td>
<td>MoA</td>
<td>As needed</td>
</tr>
<tr>
<td>FF4: Disease &amp;/or pests</td>
<td>FF4.1: Train farmers in disease prevention</td>
<td>Operation</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>FF4.2: Monitor livestock/populations (bees) for early detection of diseases or pests. Treat as required if detected.</td>
<td>Operation</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
1.13 **GROUNDWATER**

Groundwater bores are proposed to be installed in the districts of Senanga (Western Province) and Namwala (Southern Province).

**Geology**

The geology of Zambia, comprises various rock formations consisting of igneous, sedimentary and metamorphic rocks from Precambrian to recent times, but is dominated by crystalline rocks. The rock types present have been divided into four main units (UN, 1989)\(^7\):

- Ancient (Precambrian) crystalline basement rocks comprising gneisses and granitic rocks with some metasediments – mainly eastern and southern parts of the country;
- The Katanga System (Upper Precambrian to Lower Cambrian) comprising metamorphosed sediments including shales, dolomites and quartzites. The lower part of the sequence has abundant copper deposits, extending from the extreme north-west, through the Copper Belt to Southern Province. The sequence is also enriched in other metals such as cobalt, zinc and lead and has been extensively mined in some areas, especially the Copper Belt. Shales of the Katanga System occur extensively in the Bangweulu area and the west of the Copper Belt;
- The Karoo System (Upper Carboniferous–Jurassic) comprising sandstone, shale, limestone and conglomerate with some coal seams – mainly in Southern Province and along the Luangwa valley. In addition, Karoo volcanic rocks (basalts) underlie the Kalahari sediments in Western Province; and
- The Kalahari Formation (Cenozoic) comprising loose sands, gravels, clays and marls up to 150 m thick – in the west and south-west (mainly Western Province).

**Groundwater**

Figure 5 provides a broad overview of the hydrogeology of Zambia. In Zambia, aquifers can be broadly categorized into three groups:

- Aquifers where groundwater flow is mainly in fissures, channels and discontinuities, which are subdivided into highly productive and locally productive aquifers;
- Aquifers where intergranular groundwater flow is dominant; and
- Low yielding aquifers with limited potential

Table 7 summarises the results of an examination of how frequently dry and exceptionally high productive wells were encountered in the various aquifer systems in the Southern Province and suggests that wells with exceptional high yields are rarely found regardless of aquifer lithology.

<table>
<thead>
<tr>
<th>System</th>
<th>No. of boreholes</th>
<th>No. (%) of “dry boreholes”</th>
<th>No. of high productive wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid to intermediate igneous rock</td>
<td>157</td>
<td>33 (21%)</td>
<td>2</td>
</tr>
<tr>
<td>Basalt</td>
<td>89</td>
<td>17 (19%)</td>
<td>3</td>
</tr>
<tr>
<td>Gneiss &amp; undifferentiated metamorphic rock</td>
<td>73</td>
<td>17 (23%)</td>
<td>1</td>
</tr>
</tbody>
</table>


WARMA maintain a database of known bores and the standing water level of each – 9,777 data points and water depths were reported in November 2017. Project specific groundwater studies have not been undertaken, however there have been a number of studies done and earlier pilot programmes that provide insight into groundwater conditions. The following information on groundwater quality has been summarised from Smedley, PL (2001).⁹

The best aquifers in Zambia occur within the limestone and dolomite horizons of the Katanga system. Yields in these are highest in the top 30 m or so of the sediment strata where fissures are best developed. These aquifers provide a significant proportion of the water supply for the municipalities of Lusaka, Kabwe and Ndole in particular, where boreholes yield up to 35–50 l/s in karstic sections of the aquifers (UN, 1989). The Kundelungu Limestone (part of the Katanga system, central Zambia) yields up to 40 l/s (MacDonald and Partners, 1990)¹⁰. Typical borehole depths are around 50–70 m below ground level.

The second-best aquifer is found in the coarser sediments of the Kalahari system where groundwater yields are around 10–20 l/s. Large parts of the Kalahari system are poorly productive however due to abundance of fine-grained material. Within the Karoo system, coarse sediments (sandstones, conglomerates) form the best available aquifers.

Groundwater is of much more restricted occurrence in the crystalline basement rocks which are the dominate rock types. Consequently, water availability is a more significant problem in these areas. Nonetheless, groundwater is present within fractures and joints in the basement rocks and within the weathered overburden, which is typically of the order of 10–15 m thick, but up to 30 m in places. Sporadic thermal or saline springs occur in parts of Southern, Central and Eastern Provinces.

<table>
<thead>
<tr>
<th>Rock Type</th>
<th>Quantity</th>
<th>Percentage</th>
<th>Number</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schist, shale &amp; slate</td>
<td>116</td>
<td>3 (0.3%)</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Quartzite</td>
<td>37</td>
<td>0 (0%)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Carbonate &amp; calc-silicate rock</td>
<td>36</td>
<td>0 (0%)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Mudstone</td>
<td>147</td>
<td>5 (3.0%)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Pre-Kalahari sand-and siltstone</td>
<td>137</td>
<td>9 (6.6%)</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Kalahari sandstone</td>
<td>25</td>
<td>0 (0%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unconsolidated clastic sediments</td>
<td>64</td>
<td>1 (0.0%)</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>


The aquifers in Senanga are primarily in unconsolidated sands with low to moderate productivity. They consist of Quaternary alluviums, which typically have direct recharge from rainfall and recharge from rivers and the Tertiary sediments of the Kalahari Group. The Kalahari Group aquifer comprises 20 to 40 m of unconsolidated sands, which are usually unconfined. Flow and storage is intergranular. The water table is usually at a depth of about 10 to 20 m below ground surface, but sometimes as much as 30 m deep. Yields of 0.2 to 5 l/s are obtainable. The water from this aquifer is sometimes brackish and recharge is largely directly from rainfall.

Aquifers in the Namwala district comprise both the unconsolidated sediments (as for Senanga) and basement complex (granite and undifferentiated). This aquifer is composed of crystalline basement rocks, mostly granitic, and sometimes gabbro and others. The properties of crystalline basement aquifers are controlled by the depth of the weathered profile (regolith) and the degree of fracturing of unweathered bedrock. Fractured bedrock alone cannot sustain usable yields without the storage capacity of the overlying regolith.

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The regolith is typically 10 to 15 m thick, but can be up to 30 m thick. Below this, the unweathered bedrock can be fractured to depths of about 60 – 70 m. The water table is usually 20 to 30 m below the ground surface. Boreholes tend to be 50 to 60 m deep. An average transmissivity value of 5.7 m²/day is given. Yields are typically very low to low: between 0.2 and 2 l/s. Water is generally neutral but sometimes acidic. Recharge is influenced by geomorphology, thickness of regolith and depth to groundwater table.

Limited data suggest that Zambian groundwater has generally very low concentrations of dissolved constituents (total dissolved solids concentrations typically less than 200 mg/l; MacDonald and Partners, 1990). Given the geology of the region, the principal groundwater-quality problems are likely to be pollution problems associated with metal mining. Trace metals such as copper and zinc in particular, but also chromium, nickel, cadmium and arsenic may be present in increased concentrations in groundwater and surface waters affected by inputs from mine adits, slimes dams and tailings piles. Parts of the Copper Belt are potentially most vulnerable.

Nitrate
Concentrations of nitrate as well as other anthropogenic inputs to groundwater are largely unknown but likely to be greatest in the urban and agricultural areas. Transport of these pollutants in the aquifers is potentially greatest via fractures in the crystalline bedrocks and karstic limestone formations.

Groundwater is also potentially vulnerable to pollution in these areas, particularly where water tables are shallow.

Iron and manganese
Concentrations of iron and manganese are expected to be low (below recommended limits for potable water) in most shallow groundwater, except potentially those where groundwater is acidic. Such conditions are most likely in groundwater from the crystalline basement rocks. Increased iron and manganese concentrations are also likely in areas affected by mine drainage, notably in the Copper Belt.

Arsenic
The dominance of crystalline basement rocks and the likely prevalence of slightly acidic groundwater in these aquifers mean that concentrations of dissolved arsenic in the groundwater are likely to be low.

Fluoride
As with other elements, few data could be found for fluoride in Zambian groundwater. Concentrations are generally expected to be low but may be increased in some groundwater from the areas of the East African Rift (Zambezi and Luangwa Valleys in the south-east). High fluoride concentrations have been found in groundwater from the Rift areas of neighbouring Tanzania and Malawi. Areas of granite (e.g. within the Bangweulu depression, Northern Province and parts of Southern Province) are also potentially vulnerable to increased groundwater fluoride concentrations.

Fluoride values above 1.5 mg/l (the WHO guideline value) have also been found in groundwater from parts of Lusaka and in springs at Chinyunn, Kassipe and Lubungu (MacDonald and Partners, 1990).

Iodine
The concentrations of iodine in the groundwater are not known, but goitre prevalence suggests that concentrations are likely to be low in Northwestern, Western, Central, and Southern Provinces (Smedley, P.L 2001)

Groundwater quality can be threatened by intense rainfall events, which result in frequent floods. Microbiological contamination is a widespread problem in urban areas and particularly affects shallow groundwater points.

Pumping of groundwater is proposed using solar or biogas pumps. Using solar pumps limits the effective pumping period to sunshine hours. Based on previous experience community bores with yield of 1.4-2L/s can irrigate approximately 0.5ha, while commercial bores with yields of 6-10 L/s can irrigate up to 20ha using solar pumps.
Performance Criteria

The following performance criteria are set for the project:

- no significant decrease in the quality and quantity of groundwater as a result of construction and operational activities in proximity to the projects;
- groundwater quality shall conform to any approval conditions stipulated by UNDP, MoA and/or other government departments, or in the absence of such conditions follow a ‘no worsening’ methodology;
- effective implementation of site-specific EDSCPs and other measures to protect groundwater; and
- no land subsidence caused by extraction of groundwater.

By following the management measures set out in the ESMF the project will not have a significant impact on water quality across the broader area.

Monitoring

Refer to Table 8 for the monitoring requirements for groundwater.

During the project groundwater quality should be assessed initially and then at least every two months. Initial assessment should cover a wide range of parameters (eg depth to water, pH, DO, conductivity, nitrates, phosphates, faecal coliforms, heavy metals, turbidity, hydrocarbons) to provide a baseline and to confirm suitability for intended use. Subsequent monitoring parameters will be determined on need.

Ongoing monitoring should form part of the operation of the boreholes.

Reporting

All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The MoA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.
### Table 8 Groundwater management measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW 1: Increase of gross pollutants, hydrocarbons, metals and other chemical pollutants into the groundwater and/or surface water environment.</td>
<td>GW1.1: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted, including assessing the changes to groundwater quality. GW1.2: Prevent contaminated surface water from entering aquifers via boreholes and wells - protect from runoff and flooding and keep surrounds clean. GW1.3: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from water systems. GW1.4: Manage the application of fertilisers and other chemicals to ensure that over application does not occur. GW1.5: Check all vehicles, equipment and material storage areas daily for possible fuel, oil and chemical leaks. Undertake refuelling at designated places away from water systems. GW 1.6: Minimise the use of herbicides and use only biodegradable herbicides that have minimal impact on water quality and fauna. Use only as per directions</td>
<td>Construction and operation phase</td>
<td>Camp officer</td>
<td>Weekly and as required with reporting to MoA and UNDP</td>
</tr>
<tr>
<td>GW 1.1.1</td>
<td></td>
<td>Construction and operation phase</td>
<td>Camp officer</td>
<td>Weekly and as required with reporting to MoA and UNDP</td>
</tr>
<tr>
<td>GW 1.2.1</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
<td>Weekly</td>
</tr>
<tr>
<td>GW 1.3.1</td>
<td></td>
<td>Entire construction and operation phase</td>
<td>All Personnel</td>
<td>Weekly with reporting to MoA and UNDP</td>
</tr>
<tr>
<td>GW 1.4.1</td>
<td></td>
<td>Post Construction</td>
<td>Camp officer / Farmers</td>
<td>Maintain records</td>
</tr>
<tr>
<td>GW 1.5.1</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>GW 1.6.1</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
<td>Weekly reporting to MoA and UNDP</td>
</tr>
<tr>
<td>Issue</td>
<td>Control activity (and source)</td>
<td>Action timing</td>
<td>Responsibility</td>
<td>Monitoring &amp; reporting</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
<td>---------------</td>
<td>----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>GW2: Excessive use of groundwater leading to draw down of water table and possible land subsidence</td>
<td>GW2.1: Pump tests and groundwater quality studies should be carried out to determine suitability of groundwater and the safe yield.</td>
<td>Pre-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>GW2.2: Care must be exercised not to over pump. Maximum pump regimes to be determined based on assessment data and monitoring</td>
<td>Operational</td>
<td>Farmers / MoA</td>
<td>Monthly</td>
</tr>
<tr>
<td></td>
<td>GW2.3: Farmers to be trained on proper irrigation practices</td>
<td>Entire construction and operation phase</td>
<td>All Personnel</td>
<td>Weekly with reporting to MoA and UNDP</td>
</tr>
<tr>
<td>GW 3: Water logging and salinisation due to irrigation malpractice</td>
<td>GW3.1: Provide training to farmers on proper irrigation practices</td>
<td>Post-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>GW3.2: Implement surface and groundwater monitoring systems</td>
<td>Post-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
1.14 Noise and Vibration

All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project.

The project activities are been done in areas that are predominantly rural in nature (used for farming and grazing) or woodland and therefore do not have existing significant noise sources. The use of machinery or introduction of noise generating facilities could have an adverse effect on the environment and residents if not appropriately managed. It is assumed that there are no sensitive receptors in proximity to the projects.

Contractors involved in construction and rehabilitation activities should be familiar with methods of controlling noisy machines and alternative construction procedures as contained within specific Zambian legislation or in its absence, international good practice may be used if the legislation has not been enacted.

The detail, typical equipment sound power levels, provides advice on project supervision and gives guidance noise reduction. Potential noise sources during construction may include:

- heavy construction and forestry machinery;
- power tools and compressors;
- delivery vehicles;
- drill rigs; and
- pumps.

Performance Criteria

The following performance criteria are set for the construction of the projects:

- noise from construction and operational activities must not cause an environmental nuisance at any noise sensitive place;
- undertake measures at all times to assist in minimising the noise associated with construction activities;
- no damage to off-site property caused by vibration from construction and operation activities; and
- corrective action to respond to complaints is to occur within 48 hours.

Monitoring

A standardised noise monitoring program has been developed for the projects (Table 9). The program is subject to review and update at least every two months from the date of issue. Importantly, the camp officer will:

- ensure equipment and machinery is regularly maintained and appropriately operated; and
- carry out potentially noisy construction activities during ‘daytime’ hours only; i.e. 7am -5.30pm.

Reporting

All noise monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The MoA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to noise is exceeded.
### Table 9 Noise and Vibration Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1: Increased noise levels</td>
<td>N1.1: Select plant and equipment and specific design work practices to ensure that noise emissions are minimised during construction and operation including all pumping equipment.</td>
<td>All phases</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.2: Specific noise reduction devices such as silencers and mufflers shall be installed as appropriate to site plant and equipment. Workers to be provided with PPE.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.3 Minimise the need for and limit the emissions as far as practicable if noise generating construction works are to be carried out outside of the hours: 7am-5.30pm.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.4: Consultation with nearby residents in advance of construction activities particularly if noise generating construction activities are to be carried out outside of ‘daytime’ hours: 7am-5.30pm.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.5 The use of substitution control strategies shall be implemented, whereby excessive noise generating equipment items onsite are replaced with other alternatives.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.6 Provide temporary construction noise barriers in the form of solid hoardings where there may be an impact on specific residents.</td>
<td>Construction phase</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.7 All incidents complaints and non-compliances related to noise shall be reported in accordance with the site incident reporting procedures and summarised in the register.</td>
<td>Construction phase</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.8 The contractor should conduct employee and operator training to improve awareness of the need to minimise excessive noise in work practices through implementation of measures.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control activity (and source)</td>
<td>Action timing</td>
<td>Responsibility</td>
<td>Monitoring &amp; reporting</td>
</tr>
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</tr>
<tr>
<td>N2. Vibration due to construction</td>
<td>N2.1: Identify properties, structures and habitat locations that will be sensitive to vibration impacts resulting from construction and operation of the project.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.2: Design to give due regard to temporary and permanent mitigation measures for noise and vibration from construction and operational vibration impacts.</td>
<td>Pre-construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.3: All incidents, complaints and con-compliances related to vibration shall be reported in accordance with the site incident reporting procedures and summarised in the register.</td>
<td>Construction phase</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.4: During construction, standard measure shall be taken to locate and protect underground services from construction and operational vibration impacts.</td>
<td>Construction phase</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.5: Provide appropriate training and PPE to workers.</td>
<td>Construction phase</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
1.15 Surface Water

The climate of Zambia is tropical modified by altitude. In the Koppen climate classification, most of the country is classified as humid subtropical or tropical wet and dry, with small patches of semi-arid steppe climate in the south-west.

There are two main seasons, the rainy season (summer) (November to April) and the dry season (winter) (May to October/November). The dry season is subdivided into the cool dry season (May to August) and the hot dry season (September to October/November). Rainfall varies over a range of 500 to 1400mm (Figure 6). The highest rainfall is in the north, especially the north-west and the north-east, decreasing towards the south; the driest areas are in the far south west and the Luangwa River and middle Zambezi River valleys, parts of which are considered semi-arid. None of the country is considered arid or to be desert. Flooding is an annual event on floodplains.

Performance Criteria

The following performance criteria are set for the construction of the projects:

- no significant decrease in water quality as a result of construction and operational activities;

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12 C. McSweeney, M. New and G. Lizcano UNDP Climate Change Country Profiles: Zambia
• water quality shall conform to any approval conditions stipulated by UNDP, MoA and/or other government departments, or in the absence of such conditions follow a ‘no worsening’ methodology; and
• effective implementation of site-specific EDSCPs.

Monitoring

Having water of a quality that is fit for purpose is important. Water quality can affect plant growth, livestock health, soil quality, farm equipment and domestic use. The quality of a water source is also variable depending upon weather and external inputs.

Evaporation increases the concentrations of salts while a flush of water dilutes salts but may increase sediment and fertilisers, and manure or nutrient runoff. Monitoring should be done regularly and more frequently in summer or in periods of prolonged moisture stress.

Table 10 outlines the monitoring required.

Reporting

All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The MoA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.
### Table 10 Water Quality Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1</td>
<td>Elevated suspended solids and other contaminants in surface water systems.</td>
<td>W1.1: Develop and implement a site-specific Erosion, Drainage and Sediment Control Plan (EDSCP) to address drainage control, sediment and erosion controls and stockpiling of materials including soil during construction of all components of the projects. EDSCP measures to be inspected regularly to ensure all devices are functioning effectively.</td>
<td>Pre Earthworks</td>
<td>Camp officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W1.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from water systems.</td>
<td>Entire construction and operation phase</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W1.3: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted including assessing the changes to groundwater quality.</td>
<td>Entire construction and operation phase</td>
<td>Camp officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W1.4: Schedule works in stages to ensure that disturbed areas are revegetated and stabilised progressively and as soon as practicable after completion of works.</td>
<td>Avoid undertaking bulk earthworks during wet season</td>
<td>Camp officer and MoA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W1.5: Construction materials will not be stockpiled in proximity to aquatic environment that may allow for release into the environment. Construction equipment will be removed from in proximity to the aquatic environment at the end of each working day or if heavy rainfall is predicted</td>
<td>Entire construction and operation phase</td>
<td>Camp officer</td>
</tr>
</tbody>
</table>
1.16 EROSION, DRAINAGE AND SEDIMENT CONTROL

Soils

Figure 7 Error! Reference source not found. provides a map of soil types across Zambia. The broad types of soil found in Zambia are:

- red sandveld soils cover most of the country, and are generally not very fertile due to weathering and leaching; the top soil is sandy and is more fertile where the top soil has a higher clay content;
- Grey dambo soils contain more nutrients but are waterlogged in the rainy season and often very acidic, restricting the plants which can grow there to sedges and wiry grasses tolerant of marshy conditions;
- Black soils of floodplains are fertile, grasses grow on them as soon as the annual flood recedes and provide a rich resource for herbivores. If the annual flood is disrupted by dams, woody shrubs of lower nutritional value tend to replace grasses and so reduce the number of herbivores and biodiversity; and
- Kalahari Sands in the south-west of the country are infertile and do not retain moisture, so are dominated mostly by deep-rooted trees with little growth in the understory. Grasslands both flooded and non-flooded also occur there.

Figure 7 Soils of Zambia (Government of Republic of Zambia 1986)\(^\text{13}\)

Soil erosion depends on several parameters such as type of soil, slope, vegetation, the nature of topography and rainfall intensity. The loss of soil stability and soil erosion can take place due to

the removal of vegetation cover, and numerous construction activities. It can cause the loss of soil fertility and induce slope instability. Land preparation for the project could result in blockage or alteration of natural flow paths causing changes in the drainage patterns in the area. Effective and efficient mitigation measures can not only reduce, but could improve the conditions over the existing conditions.

As discussed in Section 1.15 Surface Water, rainfall occurs mostly in the wet season which runs from November to April (Figure 8 Average monthly rainfall (Lusaka)Figure 8). Rainfall can have a significant impact on the ability to manage environmental impacts, particularly in terms of managing drainage, erosion and sedimentation. Therefore, activities which involve significant disturbance of soil or operating with drainage lines and waterways should be planned to be undertaken during the driest months. It is also important to ensure that all required erosion and sediment control mechanisms are in place before the onset of the wet season.

![Figure 8 Average monthly rainfall (Lusaka)](http://www.holidayweatherguide.com/zambia/lusaka)

The project will undertake construction of wells and reservoirs, dams, weirs and ponds, development of groundwater bores, development of small scale irrigation schemes, and erection of weather stations and buildings. All these activities have the potential to cause erosion if not properly managed.

Activities that have the potential to cause erosion should be undertaken with the likely weather conditions in mind.

**Performance Criteria**

*The following performance criteria are set for the projects:*

- no build-up of sediment in the aquatic environments and/or surface and/or groundwater as a result of construction and operation activities;
- no degradation of water quality on or off site of all projects;
- all water exiting the project site and/or into groundwater systems is to have passed through best practice erosion, drainage and sediment controls; and
- effective implementation of site-specific EDSCP.

By following the management measures set out in the ESMF, construction and operation activities of the projects will not have a significant impact as a result of sedimentation across the broader area.

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14 [http://www.holidayweatherguide.com/zambia/lusaka](http://www.holidayweatherguide.com/zambia/lusaka)
Monitoring

A standardised sediment control monitoring program has been developed for the projects (Table 11). The program is subject to review and update at least every two months from the date of issue. The camp officer will be required to:

- conduct site inspections on a weekly basis or after rainfall events exceeding 20mm in a 24-hour period;
- develop a site-specific checklist to document non-conformances to this ESMF or any applicable EDSCPs; and
- communicate the results of inspections and/or water quality testing and ensure that any issues associated with control failures are rapidly rectified and processes are put in place to ensure that similar failures are not repeated.

Reporting

All sediment and erosion control monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The MoA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to erosion and sediment control is exceeded.
Table 11 Erosion, Drainage and Sediment Control Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities</td>
<td>E1.1: Develop and implement an EDSCP for any surface works, embankments and excavation work, water crossings and stormwater pathways.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.2: Ensure that erosion and sediment control devices are installed, inspected and maintained as required.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.3: Schedule/stage works to minimise cleared areas and exposed soils at all times.</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.4: Incorporate the design and location of temporary and permanent EDSC measures for all exposed areas and drainage lines. These shall be implemented prior to pre-construction activities and shall remain onsite during work</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.5: Schedule/stage proposed works to ensure that major vegetation disturbance and earthworks are carried out during periods of lower rainfall and wind speeds.</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.6: Strip and stockpile topsoil for use during revegetation and/or place removed soils back on to agricultural lands.</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.7: Schedule/stage works to minimise the duration of stockpiling topsoil material. Vegetate stockpiles if storage required for long periods.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.8: Locate stockpile areas away from drainage pathways, waterways and sensitive locations.</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control activity (and source)</td>
<td>Action timing</td>
<td>Responsibility</td>
<td>Monitoring &amp; reporting</td>
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</tr>
<tr>
<td>E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities</td>
<td>E1.9: Design stormwater management measures to reduce flow velocities and avoid concentrating runoff.</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.10: Include check dams in drainage lines where necessary to reduce flow velocities and provide some filtration of sediment. Regularly inspect and maintain check dams.</td>
<td>Pre and during construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.11: Mulching shall be used as a form of erosion and sediment control and where used on any slopes (dependent on site selection), include extra sediment fencing during high rainfall.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.12: Bunding shall be used either within watercourses or around sensitive/dangerous goods as necessary.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.13: Grassed buffer strips shall be incorporated where necessary during construction to reduce water velocity.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.14: Silt fences or similar structures to be installed to protect from increased sediment loads.</td>
<td>During construction</td>
<td>Contractors</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.15: Excess sediment in all erosion and sediment control structures (eg. sediment basins, check dams) shall be removed when necessary to allow for adequate holding capacity.</td>
<td>During construction</td>
<td>Contractors</td>
<td>Maintain records</td>
</tr>
<tr>
<td>E2: Soil Contamination</td>
<td>E2.1: If contamination is uncovered or suspected (outside of the project footprints), undertake a Stage 1 preliminary site contamination investigation. The contractor should cease work if previously unidentified contamination is encountered and activate management procedures and obtain advice/permits/approval (as required).</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
## Environmental and Social Management Plan
Green Climate Fund Funding Proposal

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2: Soil Contamination</td>
<td>E2.2: Adherence to best practice for the removal and disposal of contaminated soil/ material from site (if required), including contaminated soil within the project footprints.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E2.3: Drainage control measures to ensure runoff does not contact contaminated areas (including contaminated material within the project footprints) and is directed/diverted to stable areas for release.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E2.4: Avoid importing fill that may result in site contamination and lacks accompanying certification/documentation. Where fill is not available through on site cut, it must be tested in accordance with geotechnical specifications.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>E3: Disposal of excess soil/silt</td>
<td>E3.4: Silt removed from dams/canals/weirs during rehabilitation / maintenance is to be beneficially reused eg composted, returned to farm land, brick making etc. Silt should be tested to confirm suitability for proposed use</td>
<td>Construction and operation phases</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td>E4: Construction risks associated with sediment/erosion control</td>
<td>E4.1: Provide workers with appropriate training and PPE to minimise construction risks</td>
<td>Construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
1.17 SOCIAL MANAGEMENT

Background

The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community. Notwithstanding, as with any project that involves construction, some dissatisfaction can occur and conflicts may arise. It is important that potential areas of tension are recognised early and appropriate actions taken to avoid or minimise conflict.

The project does not require involuntary resettlement or acquisition of land although they may impact on land during construction activities which will be temporary in nature.

Cultural Heritage

During the development of the project consideration to cultural heritage was made. Site visits to all of the 16 districts gathered a range of data both physically and in consultation with communities, including potential cultural heritage. Any area with potential cultural heritage value was avoided and not selected as a site for the project.

Furthermore, heritage areas in Zambia are protected by government and cannot be used as farm lands. For instance, Ing’ombe Iled Heritage site in Siavonga district is a protected site (heritage) and is protected by government. No farming activities take place there.

Performance Criteria

The following performance criteria are set for the project:

- the community has been consulted and project elements have been designed with their informed consultation and participation throughout the project;
- all stakeholders are appropriately represented;
- avoid adverse impacts to local community during construction and operations and where not possible, minimise, restore or compensate for these impacts;
- cultural heritage is not adversely impacted;
- community health and safety is protected and overall well-being benefits derived from the project;
- complaint and grievance mechanisms are put in place and proactively managed; and
- long-term social benefits are achieved.

Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

MoA will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

Reporting

Records of all consultations are to be kept and reported on monthly basis.

The MoA must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.
<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM1: Community consultation</td>
<td>SM 1.1: Carry out community consultation on the purpose and benefits of making changes to land use</td>
<td>Pre-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 1.2: Get community buy-in on any change of land use</td>
<td>Pre-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 1.3: Ensure compliance with the Grievance Redress Mechanism process</td>
<td>Entire construction and operation phase</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td>SM2: Public nuisance caused by construction/operation activities (eg noise, dust etc)</td>
<td>SM 2.1: Carry out community consultation prior to undertaking activities</td>
<td>Pre-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 2.2: Implement appropriate management plans (refer to Noise, Air, ESCP, and Waste sections of the ESMF)</td>
<td>Construction and operation</td>
<td>Site supervisor and MoA</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 2.3: Ensure compliance with the Grievance Redress Mechanism process</td>
<td>All phases</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td>SM3: Land Tenure</td>
<td>SM3.1: Select sites in consultation with local communities and take into account land tenure as well as legislation regarding state land</td>
<td>Pre-construction</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td>SM4: Safety</td>
<td>SM4.1: Risk assessments should be done to identify potential job safety hazards and operational safety hazards that could impact workers or community members.</td>
<td>All phases</td>
<td>MoA</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM4.2: Any areas of deep water that could represent a drowning hazard should be signed and potentially fenced. Lifesaving floatation devices may be considered.</td>
<td>Operation</td>
<td>MoA</td>
<td>Inspect annually and maintain records</td>
</tr>
<tr>
<td></td>
<td>SM4.3: Areas of open water represent potential vector borne disease threats. Measures such as stocking with fish (to reduce insect survival), community education and monitoring/eradication programs if issues identified should be considered.</td>
<td>Operation</td>
<td>MoA</td>
<td>Seasonal monitoring and maintain records</td>
</tr>
<tr>
<td>Construction is inherently dangerous. Workers are to be given appropriate training and personal protection equipment (PPE)</td>
<td>Construction</td>
<td>Contractor</td>
<td>Daily Maintain records</td>
<td></td>
</tr>
</tbody>
</table>
1.18 Waste Management

As the implementing agency, the MoA advocate good waste management practice. The preferred waste management hierarchy and principles for achieving good waste management is as follows:

- waste avoidance (avoid using unnecessary material on the projects);
- waste re-use (re-use material and reduce disposing);
- waste recycling (recycle material such as cans, bottles, etc.); and
- waste disposal (all petriscible and/or contaminated waste to be dumped at approved landfills).

The key waste streams generated during construction are likely to include residual sediment and construction wastes such as:

- the excavation wastes unsuitable for reuse during earthworks;
- wastes from construction and drilling equipment maintenance. Various heavy vehicles and construction equipment will be utilised for the duration of the construction and drilling phase. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated. Likewise, leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;
- non-hazardous liquid wastes will be generated through the use of workers’ facilities such as toilets; and
- general wastes including scrap materials and biodegradable wastes.

Key waste streams generated during operations are likely to include:

- silt from dams, ponds and other sediment traps;
- organic waste such as manure, fish emulsion, food scraps;
- packaging; and
- used oil and machinery parts.

Workers involved in construction and operational activities should be familiar with methods minimising the impacts of clearing vegetation to minimise the footprint to that essential for the works and rehabilitate disturbed areas. By doing these activities, the projects should minimise the impact of waste generated by the project.

Performance Criteria

The following performance criteria are set for the construction of the projects:

- waste generation is minimised through the implementation of the waste hierarchy (avoidance, reduce, reuse, recycle);
- no litter will be observed within the project area or surrounds as a result of activities by site personnel;
- no complaints received regarding waste generation and management;
- any waste from on-site portable sanitary facilities will be sent off site for disposal by a waste licensed contractor; and
- waste oils will be collected and disposed or recycled off-site, local oil companies or shipped for recycling.
Monitoring

A waste management monitoring program has been developed for the projects (Table 13). The program is subject to review and update at least every two months from the date of issue.

Reporting

The MoA as implementing agency must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to waste is exceeded.
### Table 13 Waste Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>WT1: Production of wastes and excessive use of resources</td>
<td>WT1.1: Preference shall be given to materials that can be used to construct the project that would reduce the direct and indirect waste generated.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.2: Daily waste practices shall be carried out unless these are delegated to the activities of external waste management bodies.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.3: The use of construction materials shall be optimised and where possible a recycling policy adopted.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.4: Separate waste streams shall be maintained at all times i.e. general domestic waste, construction and drilling waste and contaminated waste. Specific areas on site shall be designated for the temporary management of the various waste streams. Adequate signage and colour coded bins will be used for each waste streams.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.5: Any contaminated waste shall be disposed of at an approved landfill.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.6: Recyclable waste (including oil and some construction waste) shall be collected separately and disposed of correctly.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.7: Waste sites shall be sufficiently covered daily to ensure that wildlife does not have access.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily</td>
</tr>
<tr>
<td></td>
<td>WT1.8: Disposal of waste shall be carried out in accordance with the Government of Zambia requirements.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.9: Fuel and lubricant leakages from vehicles and plant including drill rigs shall be immediately rectified.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control activity (and source)</td>
<td>Action timing</td>
<td>Responsibility</td>
<td>Monitoring &amp; reporting</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
<td>--------------</td>
<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>WT1: Production of wastes and excessive use of resources</td>
<td>WT1.10: Major maintenance and repairs shall be carried out off-site whenever practicable.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.11: Where possible, fuel and chemical storage and handling shall be undertaken at central fuel and chemical storage facilities, such as petrol stations.</td>
<td>During Construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.12: On-site storage of fuel and chemicals shall be kept to a minimum.</td>
<td>During Construction</td>
<td>Contractor</td>
<td>Daily, maintain records and report any incidents</td>
</tr>
<tr>
<td></td>
<td>WT1.13: Any waste oils and lubricants are to be collected and transported to recyclers or designated disposal sites as soon as possible.</td>
<td>During Construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.14: Any dangerous goods stored on site shall be stored in accordance with Zambian regulations.</td>
<td>During Construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>WT2: Safety risks associated with waste handling</td>
<td>WT2.1: Provide appropriate training to construction and operational workers.</td>
<td>Construction and Operation</td>
<td>Contractor / Camp Officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>WT2.2: People handling/managing waste to have appropriate PPE.</td>
<td>Construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>WT2.3: Provide appropriate waste management equipment and facilities (refer above).</td>
<td>Construction and Operation</td>
<td>Contractor / MoA</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
1.19 Air Quality

All construction, drilling and rehabilitation activities have the potential to cause air quality nuisance. Operation of intensive farming and processing centres has the potential to cause odour nuisance, particularly if waste is not appropriately managed.

The project areas are predominantly rural, village/camp or woodland in character. Existing air quality reflects those environments, with dust being the main air quality nuisance.

Workers involved in construction and operation activities should be familiar with methods minimising the impacts of deleterious air quality and alternative construction procedures as contained in Ethiopian legislation or international good practice.

Processing facilities are a potential source of odours. Odorous air pollutants are often judged important primarily for their nuisance value and the number of complaints they generate. In only a few cases are there adverse health effects documented in measurable physiological terms. However, odours detected from biological processes may indicate contamination of the air by pathogens.

Performance Criteria

The following performance criteria are set for the construction of the projects:

- release of dust/particle matter must not cause an environmental nuisance;
- undertake measures at all times to assist in minimising the air quality impacts associated with construction and operation activities;
- odours are not causing environmental nuisance (as determined by the number of complaints generated); and
- corrective action to respond to complaints is to occur within 48 hours.

Monitoring

A standardised air monitoring program has been developed for the projects (Table 14). The program is subject to review and update at least every two months from the date of issue. Importantly:

- the requirement for dust suppression will be visually observed by site personnel daily and by MoA and UNDP staff when undertaking routine site inspections;
- Odour monitoring – it is expected that olfactometry (sense of smell) should be sufficient for monitoring. Obvious odours, coupled with complaints, should be noted and action taken when deemed excessive; and
- Vehicles and machinery emissions – visual monitoring and measured when deemed excessive.

Reporting

All air quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The MoA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to air quality is exceeded.
### Table 14 Air Quality Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>Increase in dust levels at sensitive receptors</td>
<td><strong>A1.1</strong>: Implement effective dust management measures in all areas during design, construction and operation.</td>
<td>Pre and during construction</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td><strong>A1.2</strong>: Install dust gauges at locations identified for significant construction lay down and stockpiling areas.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and Weekly Reports</td>
</tr>
<tr>
<td></td>
<td><strong>A1.3</strong>: Manage dust/particulate matter generating activities to ensure that emissions do not cause an environmental nuisance at any sensitive locations</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.4</strong>: Construction activities should minimising risks associated with climatic events.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.5</strong>: Implement scheduling/staging of proposed works to ensure major vegetation disturbance and earthworks are minimised.</td>
<td>Entire construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.6</strong>: Locate material stockpile areas as far as practicable from sensitive receptors.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.7</strong>: Source sufficient water of a suitable quality for dust suppression activities complying with any water restrictions.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.8</strong>: Schedule revegetation activities to ensure optimum survival of vegetation species.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.9</strong>: Rubbish skips and receptacles should be covered and located as far as practicable from sensitive locations</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td><strong>A1.10</strong>: Restrict speeds on roads and access tracks.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control activity (and source)</td>
<td>Action timing</td>
<td>Responsibility</td>
<td>Monitoring &amp; reporting</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>A1.</td>
<td>Increase in dust levels at sensitive receptors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A1.11: Cover loads of haul trucks and equipment and plant when not in use and in transit.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>A2.</td>
<td>Increase in vehicle / machinery emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A2.1 Ensure vehicles/machines are switched off when not in use.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.2 Ensure only vehicles required to undertake works are operated onsite.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.3 Ensure all construction vehicles, plant and machinery are maintained and operated in accordance with design standards and specifications.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.4 Develop and implement an induction program for all site personnel, which includes as a minimum an outline of the minimum requirements for environmental management relating to the site.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.5 Locate construction car park and vehicle/plant/equipment storage areas as far as practicable from sensitive locations.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.6 Direct exhaust emissions of mobile plant away from the ground.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.7 Rubbish skips and receptacles should be covered and located as far as practicable from sensitive locations.</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>A3.</td>
<td>Increase in odours at sensitive receptors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A3.1 Implement waste management and materials handling plans</td>
<td>Operation</td>
<td>Camp Officer</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>A3.2: Monitor odours (olfactory method) and investigate any complaints</td>
<td>Operation</td>
<td>Camp Officer</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
1.20 Emergency Management Measures

In the event of actions occurring, which may result in serious health, safety and environmental (catastrophic) damage, emergency response or contingency actions will be implemented as soon as possible to limit the extent of environmental damage.

It is assumed that no residences will be located immediately downstream of any weirs or larger water storages. Residents and other sensitive receptors may be in proximity to aggregating and processing centres.

The delivery organisation will need to incorporate emergency responses into the project complying with the requirements under the Occupational, Health and Safety Policy of the delivery organisation or the work-related Government of the Zambia legislation.

Performance Criteria

The following performance criteria are set for the construction of the projects:

- no incident of fire outbreak;
- no failure of weirs or other water retaining structures;
- no major chemical or fuel spills;
- no preventable industrial or work-related accidents;
- provide an immediate and effective response to incidents that represent a risk to public health, safety or the environment; and
- minimise environmental harm due to unforeseen incidents.

Monitoring

An emergency response monitoring program has been developed for the projects (Table 15). The program is subject to review and update at least every two months from the date of issue. Importantly, visual inspections will be conducted by camp officer daily with reporting to MoA and UNDP staff on a weekly basis (minimum) noting any non-conformances to this ESMF.

Reporting

The MoA and UNDP staff must be notified immediately in the event of any emergency, including fire or health related matter including those that have resulted in serious environmental harm.
### Table 15 Emergency Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control activity (and source)</th>
<th>Action timing</th>
<th>Responsibility</th>
<th>Monitoring &amp; reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1. Fire and Emergency management and prevention strategies implemented</td>
<td>E1.1: Flammable and combustible liquids bunding/storage areas to be designed in accordance with appropriate international standards</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.2: Fire extinguishers are to be available within all site vehicle</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.3: No open fires are permitted within the project area</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.4: No cigarette butts are to be disposed of onto the ground throughout the project area, all smokers must carry a portable disposal bin to reduce the risk of a spot fire starting and general litter</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.5: Water storages to be monitored in terms of capacity and infrastructure condition</td>
<td>Operation</td>
<td>MoA</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.6: Train all staff in emergency preparedness and response (cover health and safety at the work site)</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.7: Check and replenish First Aid Kits</td>
<td>During construction</td>
<td>Camp officer</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.8: Use of Personal Protection Equipment</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
## Budget for ESMF Implementation

A budget estimate has been prepared for the implementation of the ESMF as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESMF Updating and Auditing</td>
<td>$10,000</td>
</tr>
<tr>
<td>General ESMF Expenses</td>
<td>$20,000</td>
</tr>
<tr>
<td>Ecological Monitoring (20 sites - two assessments/year over five years)</td>
<td>$60,000</td>
</tr>
<tr>
<td>Groundwater pump tests and laboratory testing (broad suite) – 150 sites</td>
<td>$250,000</td>
</tr>
<tr>
<td>Water Quality Monitoring (monitoring to be undertaken over five years)</td>
<td>$200,000</td>
</tr>
<tr>
<td>Sediment Sample Field Testing</td>
<td>$50,000</td>
</tr>
<tr>
<td>Erosion, Drainage and Sediment Control</td>
<td>$150,000</td>
</tr>
<tr>
<td>Training and PPE</td>
<td>$100,000</td>
</tr>
<tr>
<td>Stakeholder Engagement Workshops</td>
<td>$100,000</td>
</tr>
<tr>
<td>Grievance Redress Mechanism</td>
<td>$50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$990,000</strong></td>
</tr>
</tbody>
</table>
1.21 Annexure One: Community Consultation and Stakeholder Engagement Information/ Stakeholder Engagement Plan

Introduction

The proposed project supports the Government of Zambia to strengthen the resilience to climate change risks of vulnerable smallholder farmers in the country’s Agro-ecological Regions I and II. These Regions are facing increasing risks as a result of climate change, primarily variability of rainfall and increased frequency of droughts, which have direct impacts on the agricultural production in the region. They are also the regions of Zambia which have the highest concentration of poverty incidence and where rain-fed agriculture is predominant. Therefore, the poorest smallholder farmers in these regions are facing devastating impacts on their livelihoods which will further erode development gains. Women will be disproportionately affected by these impacts, given their role in ensuring household food production and food/nutritional security, despite their unequal access to land, information and inputs (e.g. improved seeds, fertilizer, tools).

This project aims to address these risks, with the key objective to enhance the lives and livelihoods of smallholder farmers in Agro-ecological Regions I and II in Zambia to adapt and become resilient to the impacts of climate change and variability. The project interventions will have a strong focus on women, given their unique capacities and vulnerabilities. The project will achieve this aim by taking a value chain approach, addressing risks posed across key stages of the value chain – planning, inputs, production and post-production. The project will make targeted interventions to capitalize on opportunities to strengthen and promote viable climate-resilient value chains relating to smallholder agriculture in the target regions, specifically targeted value chains that are gender-sensitive and provide viable economic opportunities for women. This includes three interrelated sub-components: 1) strengthening capacity of farmers to plan for climate risk; 2) strengthening resilient agricultural production and diversification practices (for both food security and income generation); and 3) strengthening farmers’ access to markets and commercialization of resilient agricultural commodities.

Within the two Agro-ecological regions, smallholder farmers in the 5 provinces (namely, Eastern, Lusaka, Muchinga, Southern and Western) will be directly targeted by the project, specifically including the following 16 districts: Mambwe, Nyimba, Chongwe, Luangwa, Chirundu, Rufunsa, Chama, Mafinga, Kazungula, Siavonga, Gwembe, Namwala, Shang’ombo, Senanga, Seshake and Mulobezi. The direct beneficiaries will represent approximately 946,153 people. These districts were selected given their specific vulnerability to climate change risks, primarily increasing droughts, variability of rainfall and occasional floods, coupled with high incidence of poverty. Target beneficiaries currently have little resilience to cope with climate impacts or sustain livelihoods in the face of climate.

The project aligns with the Government of the Republic of Zambia’s (GRZ) key development goals, defined in the Zambia’s Seventh National Development Plan and Vision 2030 Strategy, which identify the agriculture sector as critical for achieving the objective of becoming a prosperous middle-income country by the year 2030. The project is also anchored in the country’s NAPA (2007), National Climate Change...
Response Strategy (2010), National Strategy for Reducing Emissions from Deforestation and Forest Degradation (REDD) (2015) and contributes to the implementation of the Nationally Determined Contributions (NDC) (2015), which prioritizes “promotion of conservation/smart agriculture activities leading to adaptation benefits and enhancing climate resilience, especially in rural areas,” as well as conservation of water, water technologies for irrigation, and strengthening climate information services. It promotes a paradigm shift by taking a comprehensive approach to addressing the entire value chain, and providing the initial trigger for poor and vulnerable farmers to shift onto a resilient trajectory for agricultural livelihoods. This will also result in sustainable development benefits, as these vulnerable farmers and their families will see increases in income and enhanced food security – leading to health and environmental co-benefits.

**Regulations and Requirements**

It is a policy in UNDP that programmes that are implemented have the following:

- Align with national priorities and strategies
- Free consent of the participants
- That the approach is human rights based approach and gender centric

**Summary of any previous stakeholder engagement activities**

The process of developing the funding proposal had a deeply consultative process that had private sector, NGOs, government agencies/ministries, provincial and district offices and farmers who participated bilaterally and in workshops. Table 16 lists the schedule showing the meetings that took place during the consultative process of program development.

Table 16 Stakeholder consultation during program development

<table>
<thead>
<tr>
<th>Date</th>
<th>Stakeholders</th>
<th>Issues Discussed</th>
</tr>
</thead>
</table>
| 22nd December 2015 | Ministry of Agriculture, Ministry of Lands, Ministry of Finance (Interim Climate Change Secretariat), Zambia Water Partnership, Department of Energy, Zambia Meteorological Department, Ministry of Gender, Seed Certification Institute, WFP, University of Zambia, CERED, UNDP | Lessons learnt from climate change adaptation projects  
Programme component that would feed the proposal for upscaling  
Linkages between proposed components and Nationally Determined Contributions (NDCs) |
<p>|            | Briefing at Ministry of Agriculture: Deputy Director for Agriculture and Coordinator for CCAP | Discussion on GCF processes, reflections on lessons learnt and possible programme component |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>22nd February 2016</td>
<td>Meeting with NDA</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme component</td>
</tr>
<tr>
<td></td>
<td>Meeting with DMMU</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme component</td>
</tr>
<tr>
<td></td>
<td>Zambia Meteorological Department</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme design</td>
</tr>
<tr>
<td>23rd February 2016</td>
<td>Meeting with Interim Climate Change Secretariat- Ministry of Finance</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme components and design</td>
</tr>
<tr>
<td></td>
<td>Meeting with Zambia National Farmers Union</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme components</td>
</tr>
<tr>
<td>24th February 2016</td>
<td>Meeting with GEF Focal Point/Director Environment</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme components and design</td>
</tr>
<tr>
<td></td>
<td>Meeting with Zambia Agriculture Research Institute-ZARI</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme components</td>
</tr>
<tr>
<td></td>
<td>Meeting with Barclays Bank</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme component</td>
</tr>
<tr>
<td>25th February 2016</td>
<td>Meeting with Rome Based UN Agencies (FAO, WFP and IFAD)</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme components and roles of these agencies</td>
</tr>
<tr>
<td></td>
<td>Meeting with NWK (or Dunavant Cotton)</td>
<td>Discussion on GCF processes, reflections on lessons learnt and possible programme components. Insurance and private sector participation was also discussed</td>
</tr>
<tr>
<td>26th February 2016</td>
<td>Debrief with NDA and Ministry of Agriculture – Director Agriculture</td>
<td>Update of the findings and framework of the theory of change and the concept note</td>
</tr>
<tr>
<td>14th March 2016</td>
<td>Stakeholder consultation meeting that included the following: Farmers, Extension workers, district Agric officers, provincial Agric and ZMD Officers</td>
<td>To agree on the project focus&lt;br&gt;To identify barriers and how to address them based on lessons from previous projects&lt;br&gt;To agree on key activities</td>
</tr>
</tbody>
</table>
### Project Stakeholders

The following are the stakeholders that have a stake in the project and its outputs/outcomes with their interests and effects on the project.

Table 17 Identification of key stakeholders and their interests, importance and influence for strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Interests at stake in relation to project</th>
<th>Effect of project on Interests (+0 –)</th>
<th>Importance (scale 1 to 5, 5 = highest)</th>
<th>Influence (scale 1 to 5, 5 = highest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment and Social Management Plan Green Climate Fund Funding Proposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Stakeholder</td>
<td>Alignment/Activity</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
<td>--------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>Ministry of Planning and National Development</td>
<td>Alignment with national priorities, strategies and development plans</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Ministry of Finance</td>
<td>Resource mobilisation external and domestic</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Ministry of Agriculture</td>
<td>Resilient livelihoods and agricultural development</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Ministry of Transport &amp; Communication (Zambia Meteorological Department)</td>
<td>Greater capacity to collect, process, package and disseminate downscaled weather and climate information with communities for resilient planning and action by communities</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Ministry of Water, Sanitation &amp; Environmental Protection (WARMA and Department of Water Affairs)</td>
<td>Enhanced water management for sustainable investments and development</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Universities</td>
<td>Research and development in climate smart livelihoods and agriculture</td>
<td>+</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Zambia Agriculture Research Institute</td>
<td>Research and development in climate smart livelihoods and agriculture</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Private sector organizations (Commercial Banks, Development Banks, Out grower schemes, insurance companies, commodity exchange)</td>
<td>Opportunities for business growth in the face of climate change including insurance, input supply, market development</td>
<td>+</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>NGO groups (e.g. Zambia National Farmers Union, Conservation Farming Unit)</td>
<td>Improved engagement and benefit accrual to farmers</td>
<td>+</td>
<td>3</td>
</tr>
</tbody>
</table>
Stakeholder Engagement Program

Table 18 provides an outline of the Stakeholder Engagement Program. The purpose of this stakeholder engagement plan is to guide stakeholders and project implementers as to when, how and with whom consultations and exchanges shall be undertaken throughout the life of the project. This will enhance project effectiveness and efficiency through addressing different stakeholder needs such as information on all areas including conflict resolution where such may arise on the effects of the programme on the physical and social environment.

Table 18 Information sharing and feedback mechanism for key stakeholders in the Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia

<table>
<thead>
<tr>
<th></th>
<th>Stakeholder Engagement Plan Zamb</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Women Groups</td>
<td>Gender equity and equality for women empowerment; Opportunities to participate</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>Youth Groups</td>
<td>Youth inclusion and empowerment; Opportunities to participate</td>
<td>+</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>Provincial Development Coordinating Committee</td>
<td>Provincial coordination and support to the project for enhanced climate change resilience</td>
<td>+</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>District Development Coordinating Committee</td>
<td>District and sub district coordination and support to the project for enhanced climate change resilience</td>
<td>+</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>Farmers, Cooperatives, Farmer Groups, Water Users Associations</td>
<td>Opportunities to participate, make decisions and be climate resilient with economic development and nutrition security</td>
<td>+</td>
<td>3</td>
</tr>
</tbody>
</table>
## Environmental and Social Management Plan

**Green Climate Fund Funding Proposal**

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Information to be shared</th>
<th>Format</th>
<th>Method of sharing</th>
<th>Frequency</th>
<th>Location</th>
<th>Feedback mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ministry of Planning and National Development</td>
<td>Project proposal issues from GCF Project implementation progress</td>
<td>Briefings and official letters Brochures</td>
<td>Meetings Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka Ministry of Planning HQ- NDA</td>
<td>The meetings will provide opportunities for feedback to be given to UNDP</td>
</tr>
<tr>
<td>2 Ministry of Finance</td>
<td>Project proposal issues from GCF Project implementation progress</td>
<td>Briefings and official letters Brochures</td>
<td>Meetings Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka</td>
<td>The meetings will provide opportunities for feedback to be given to UNDP</td>
</tr>
<tr>
<td>3 Ministry of Agriculture</td>
<td>Project proposal issues from GCF Project implementation progress</td>
<td>Briefings and official letters Brochures</td>
<td>Meetings Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka, Ministry of Agriculture HQ</td>
<td>The meetings will provide opportunities for feedback to be given to UNDP</td>
</tr>
<tr>
<td>4 Ministry of transport &amp; Communication (Zambia Meteorological Department)</td>
<td>Project proposal issues from GCF Project implementation progress</td>
<td>Briefings and official letters Brochures</td>
<td>Meetings Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka</td>
<td>The meetings will provide opportunities for feedback to be given to UNDP</td>
</tr>
<tr>
<td>5 Ministry of Water, Sanitation &amp;</td>
<td>Project proposal issues from GCF</td>
<td>Briefings and official</td>
<td>Meetings</td>
<td>Quarterly</td>
<td>Lusaka</td>
<td>The meetings will provide</td>
</tr>
</tbody>
</table>
## Environmental and Social Management Plan
### Green Climate Fund Funding Proposal

<table>
<thead>
<tr>
<th>Stakeholder Sector</th>
<th>Stakeholders Description</th>
<th>Monitoring &amp; Engagement Plan</th>
<th>Frequency</th>
<th>Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental Protection</strong> (WARMA and Department of Water Affairs)</td>
<td>Project implementation progress</td>
<td>letters, Brochures</td>
<td>Letters and emails</td>
<td></td>
<td>opportunitie for feedback to be given to UNDP</td>
</tr>
<tr>
<td><strong>Universities</strong></td>
<td>Project proposal issues from GCF, Project implementation progress</td>
<td>Briefings and official letters, Brochures</td>
<td>Meetings, Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka</td>
</tr>
<tr>
<td><strong>Zambia Agriculture Research Institute</strong></td>
<td>Project proposal issues from GCF, Project implementation progress</td>
<td>Briefings and official letters, Brochures</td>
<td>Meetings, Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka</td>
</tr>
<tr>
<td><strong>Private sector organizations</strong> (Commercial Banks, Development Banks, Out grower schemes, insurance companies, commodity exchange)</td>
<td>Project proposal issues from GCF, Project implementation progress</td>
<td>Briefings and official letters, Brochures</td>
<td>Meetings, Letters and emails</td>
<td>Quarterly</td>
<td>Lusaka</td>
</tr>
<tr>
<td><strong>NGO groups</strong> (e.g. Zambia National Farmers Union, Conservation Farming Unit)</td>
<td>Project proposal issues from GCF, Project implementation progress</td>
<td>Briefings and official letters</td>
<td>Meetings, Letters and emails, Brochures</td>
<td>Quarterly</td>
<td>Lusaka</td>
</tr>
<tr>
<td>No.</td>
<td>Stakeholder Group</td>
<td>Project Proposal Issues</td>
<td>Project GCF Implementation Progress</td>
<td>Briefings and Official Letters</td>
<td>Brochures</td>
</tr>
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<td>Women Groups</td>
<td>Project proposal issues from GCF</td>
<td>Project implementation progress</td>
<td>Briefings and official letters</td>
<td>Brochures</td>
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<td>11</td>
<td>Youth Groups</td>
<td>Project proposal issues from GCF</td>
<td>Project implementation progress</td>
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<td>District Development Coordinating Committee</td>
<td>Project proposal issues from GCF</td>
<td>Project implementation progress</td>
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<td>Farmers, Cooperatives, Farmer Groups, Water Users Associations</td>
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</table>
Environmental and Social Management Plan  
Green Climate Fund Funding Proposal

<table>
<thead>
<tr>
<th>Stakeholder Engagement Plan Zambia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

| **16** | All Stakeholders except farmers, district and provincial officers | Implementation progress | Briefings and presentation Brochures | Project Steering Committee and Project technical Committee s | Quarterly | Lusaka and various | The meetings will provide opportunitie s for feedback to be given to UNDP |

Through the affirmative action for gender, an officer will be hired to particularly look at women integration, empowerment which will also include the women. The budget for these activities is an integral part of the budget that was submitted in the proposal.

**Timetable:**

The time table is as indicated in the frequency of meetings in the table above

**Resources and Responsibilities**

The process of implementation and reviews on the project which is budgeted will provide the platforms for activities in the stakeholder engagement plan. The PIU will be responsible for issues and risk management which will only be escalated to Country Director level if the solution is not found within the PIU level.

**Grievance Mechanism**

The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint and/or grievance, all parties must act at all times, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.

The communities and other stakeholders will be informed of the available means for redress on contentious issues that may arise. These include the stakeholders’ response mechanism within the UNDP.
The people affected with the project interventions in certain ways will air their grievances through the Agriculture Camp Committees, Infrastructure Committees, District Leadership, PIU. The PIU will take front line to address the issues and grievances while UNDP Head of Agency and Ministry of Agriculture will be responsible for things that will be beyond the capacity of the PIU to resolve.

Local communities and other interested stakeholders may also raise a grievance/complaint at all times to the Office of Public Protector. The Office of the Public Protector Zambia is a Parliamentary Ombudsman's Office mandated to represent public interest by offering all citizens a free, accessible, prompt, objective and impartial platform for redress of their grievances against public institutions and officers with respect to the manner in which they conduct their official duties.

The Public Protector may among other things:

Investigate an action or decision taken or omitted to be taken by a State Institution in the performance of an administrative function;

Bring an action before a Court;

Hear an appeal by a person relating to an action or decision taken or omitted to be taken in respect of that person; and

Make a decision on an action to be taken against a public Officer or Constitutional Office holder, which decision shall be implemented by an appropriate authority.

This newly formed authority has yet to set up Provincial or District offices, but can be contacted at: Plot 4623 Mwaimwena Road Rhodespark, Lusaka (Opposite Jacaranda Basic School); by phone +260 211 228330; or via Facebook (https://www.facebook.com/officeofthePublicProtector-Zambia)

Prior to lodging a complaint before the Public Protector, a complainant must take all the reasonable steps possible to exhaust the available administrative channels available within a public entity

In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP’s Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP’s Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations, and managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

Monitoring and Reporting

Joint monitoring will be undertaken between the PIU, farmers, Government for potential impacts positive and negative on the communities and the environment. The process will be participatory and will be conducted jointly to ensure the issues that arise are taken note of and responses provided on site where possible. Feedback would also be provided through meetings in the community through the extension
officers for issues would need consideration at very high levels. Recommendations would be provided to communities on how best to address the issues that will be identified during implementation.

Stakeholder engagement results will be communicated through monthly quarterly and annual reviews that will be undertaken on the project. The communication will be in form of reports and meetings.

1.22 ANNEXURE TWO GUIDANCE FOR SUBMITTING A REQUEST TO THE SOCIAL AND ENVIRONMENTAL COMPLIANCE UNIT AND/OR THE STAKEHOLDER RESPONSE MECHANISM

Guidance for Submitting a Request to the Social and Environmental Compliance Unit (SECU) and/or the Stakeholder Response Mechanism (SRM)

Purpose of this form
- If you use this form, please put your answers in bold writing to distinguish text
- The use of this form is recommended, but not required. It can also serve as a guide when drafting a request.

This form is intended to assist in:

(1) Submitting a request when you believe UNDP is not complying with its social or environmental policies or commitments and you are believe you are being harmed as a result. This request could initiate a ‘compliance review’, which is an independent investigation conducted by the Social and Environmental Compliance Unit (SECU), within UNDP’s Office of Audit and Investigations, to determine if UNDP policies or commitments have been violated and to identify measures to address these violations. SECU would interact with you during the compliance review to determine the facts of the situation. You would be kept informed about the results of the compliance review.

and/or

(2) Submitting a request for UNDP “Stakeholder Response” when you believe a UNDP project is having or may have an adverse social or environmental impact on you and you would like to initiate a process that brings together affected communities and other stakeholders (e.g., government representatives, UNDP, etc.) to jointly address your concerns. This Stakeholder Response process would be led by the UNDP Country Office or facilitated through UNDP headquarters. UNDP staff would communicate
and interact with you as part of the response, both for fact-finding and for developing solutions. Other project stakeholders may also be involved if needed.

Please note that if you have not already made an effort to resolve your concern by communicating directly with the government representatives and UNDP staff responsible for this project, you should do so before making a request to UNDP’s Stakeholder Response Mechanism.

Confidentiality If you choose the Compliance Review process, you may keep your identity confidential (known only to the Compliance Review team). If you choose the Stakeholder Response Mechanism, you can choose to keep your identity confidential during the initial eligibility screening and assessment of your case. If your request is eligible and the assessment indicates that a response is appropriate, UNDP staff will discuss the proposed response with you, and will also discuss whether and how to maintain confidentiality of your identity.

Guidance When submitting a request please provide as much information as possible. If you accidentally email an incomplete form, or have additional information you would like to provide, simply send a follow-up email explaining any changes.

Information about You Are you…
1. A person affected by a UNDP-supported project?
Mark “X” next to the answer that applies to you: Yes: No:
2. An authorized representative of an affected person or group?
Mark “X” next to the answer that applies to you: Yes: No:

If you are an authorized representative, please provide the names of all the people whom you are representing, and documentation of their authorization for you to act on their behalf, by attaching one or more files to this form.
3. First name:
4. Last name:
5. Any other identifying information:
6. Mailing address:
7. Email address:
8. Telephone Number (with country code):
9. Your address/location:
10. Nearest city or town:
11. Any additional instructions on how to contact you:
12. Country:

What you are seeking from UNDP: Compliance Review and/or Stakeholder Response
You have four options:
• Submit a request for a Compliance Review;
• Submit a request for a Stakeholder Response;
Submit a request for both a Compliance Review and a Stakeholder Response;
State that you are unsure whether you would like Compliance Review or Stakeholder Response and that you desire both entities to review your case.

13. Are you concerned that UNDP’s failure to meet a UNDP social and/or environmental policy or commitment is harming, or could harm, you or your community? Mark “X” next to the answer that applies to you: Yes: No:

14. Would you like your name(s) to remain confidential throughout the Compliance Review process?
Mark “X” next to the answer that applies to you: Yes: No:
If confidentiality is requested, please state why:

15. Would you like to work with other stakeholders, e.g., the government, UNDP, etc. to jointly resolve a concern about social or environmental impacts or risks you believe you are experiencing because of a UNDP project?
Mark “X” next to the answer that applies to you: Yes: No:

16. Would you like your name(s) to remain confidential during the initial assessment of your request for a response?
Mark “X” next to the answer that applies to you: Yes: No:
If confidentiality is requested, please state why:

17. Requests for Stakeholder Response will be handled through UNDP Country Offices unless you indicate that you would like your request to be handled through UNDP Headquarters. Would you like UNDP Headquarters to handle your request?
Mark “X” next to the answer that applies to you: Yes: No:
If you have indicated yes, please indicate why your request should be handled through UNDP Headquarters:

18. Are you seeking both Compliance Review and Stakeholder Response?
Mark “X” next to the answer that applies to you: Yes: No:

19. Are you unsure whether you would like to request a Compliance Review or a Stakeholder Response?
Mark “X” next to the answer that applies to you: Yes: No:

Information about the UNDP Project you are concerned about, and the nature of your concern:

20. Which UNDP-supported project are you concerned about? (if known):

21. Project name (if known):

22. Please provide a short description of your concerns about the project. If you have concerns about UNDP’s failure to comply with its social or environmental policies and commitments, and can identify these policies and commitments, please do (not required). Please describe, as well, the types of environmental and social impacts that may occur, or have occurred, as a result. If more space is required, please attach any documents. You may write in any language you choose
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23. Have you discussed your concerns with the government representatives and UNDP staff responsible for this project? Non-governmental organisations?

Mark “X” next to the answer that applies to you:  Yes: No:
If you answered yes, please provide the name(s) of those you have discussed your concerns with Name of Officials You have Already Contacted Regarding this Issue:

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Title/Affiliation</th>
<th>Estimated Date of Contact</th>
<th>Response from the Individual</th>
</tr>
</thead>
</table>

24. Are there other individuals or groups that are adversely affected by the project?

Mark “X” next to the answer that applies to you: Yes: No:

25. Please provide the names and/or description of other individuals or groups that support the request:

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Title/Affiliation</th>
<th>Contact Information</th>
</tr>
</thead>
</table>

Please attach to your email any documents you wish to send to SECU and/or the SRM. If all of your attachments do not fit in one email, please feel free to send multiple emails.

Submission and Support

To submit your request, or if you need assistance please email: project.concerns@undp.org