



**MINISTRY OF FINANCE
INTERIM CLIMATE CHANGE SECRETARIAT**

**ENVIRONMENTAL AND SOCIAL MANAGEMENT
FRAMEWORK**

**Displaced Persons and Border Communities
Project - Zambia Component (P152821)**

March 2016

EXECUTIVE SUMMARY

Project background and rationale for Environmental and Social Management Framework

Project description. The proposed *Displaced Persons and Border Communities Project - Zambia Component* (hereafter Displaced Persons and Border Communities Project) supports both eligible former refugees and host communities in relocation areas and surrounding districts. The two relocation areas fell initially under Kaoma and Solwezi Districts. However, with the recent split of the two Districts, it is unclear yet (boundaries are being confirmed), which Districts within these two initial larger Districts, the relocation areas fall. For now, the two main areas of project implementation are referred to as Kaoma and Solwezi District. The project's main activities will support both eligible former refugees and host communities through a Community Driven Development (CDD) approach with a main focus on connective infrastructure (road/bridge rehabilitation, electricity), socio-economic infrastructure (construction/rehabilitation of market, clinic, school, access road, boreholes), small scale livelihoods support (agriculture equipment, input and training), and support to social cohesion and conflict prevention (sensitization, conflict mitigation training, etc.).

Rationale for ESMF. The World Bank OP/BP 4.01 on Environmental Assessment is triggered in relation to construction and rehabilitation of infrastructure and small livelihood activities. The project is not expected to have long-term, irreversible or significant negative social or environmental impacts. Construction of connective infrastructure, socio-economic infrastructure, and small livelihood support, may have potentially marginal negative environmental impacts and no cumulative effect, and could include: loss of vegetation and the cutting down of trees to facilitate construction/rehabilitation of infrastructure and farming activities, disturbances related to construction, increased pressure on both surface and ground water due to abstraction of water from boreholes and rivers, increased incidence of soil erosion due to loss of vegetation cover and the loss of habitat due to changes in land use.

Potential negative social impacts could include tensions and conflicts among former refugees and Zambians in the host communities, as well tensions between eligible and non-eligible former refugees. In addition, potential empowerment of women through project support, could lead to household conflict and potential exposure to SGBV. Increased interaction with construction workers, may lead to sexual exploitation or increased sexual encounters between contractors and local communities including exposure to human immunodeficiency virus (HIV)/ acquired immunodeficiency syndrome (AIDS).

Since the specific project activities and locations are not yet known (they will be identified through a Community Driven Development approach during project implementation), the proposed environmental assessment instrument is an Environmental Social Management Framework (ESMF). The ESMF also includes provisions related to:

- (i) OP/BP 4.04 on Natural Habitats - triggered as the proposed project is likely to result in change of land use. This may directly or indirectly induce significant impacts on the flora, fauna and avifauna. The cutting down of trees and clearing of vegetation for farming

activities is likely to change the landscape of the area. The ESMF identifies areas of ecological sensitivity and proposes measures to avoid or if unavoidable, implement mitigation measures that will minimize impacts on fauna, flora and avifauna.

- (ii) OP/BP 4.36 on Forests - triggered since both areas have high vegetation and forest cover. The integration of former refugees with the host communities will further increase incidences of encroachment, charcoal production, logging for timber and the cutting down of forests to open up the areas to farming activities.
- (iii) OP/BP 4.09 on Pest Management – triggered as a precautionary measure in relation to possible livelihood support related to agriculture.

Rationale for RPF. In parallel, a Resettlement Policy Framework was prepared. While measures have been taken to avoid as much as possible involuntary resettlement, and very few to potentially no cases are expected to take place, the World Bank Operational Policy OP/BP 4.12 on involuntary resettlement has been triggered as a precaution. The main and central aspect relates to infrastructure rehabilitation or construction in the context of the execution of sub-grants provided through a Community Demand Driven (CDD) process. The exact location and content of the CDD sub-projects are by nature not pre-defined or identified. For that reason, a Resettlement Policy Framework (RPF) has been prepared specifying the requirements for screening of sub-grants identifying possible cases for which a specific Resettlement Action Plan (RAP) would be required.

Main provisions of the ESMF

The ESMF identifies broad mitigation, monitoring and institutional measures to be undertaken in order to ensure that the implementation of the project activities avoids as much as possible adverse social and environmental impacts, and when avoidable, mitigates such impacts.

For potential loss of vegetation associated with construction, constructors and communities should minimize the loss of natural vegetation, and re-vegetate any plant loss with native species to protect susceptible soil surfaces. Contractors are required to mitigate increased air pollution and noise levels during construction/ or rehabilitation of roads or other infrastructure by employing dust control measures, e.g. by spraying and moistening the ground, and limiting construction noise to restricted times agreed to in the permit. Possible contamination of water sources should be mitigated through disposal of contaminated water in addition to decisions on site locations location done in collaboration with relevant planning authorities, and in consultation with surrounding communities (where possible siting of building in locations previously used for infrastructure) to minimize negative environmental impacts. Details on all identified impacts and mitigation mechanisms are in table 6.

Social impact include a risk of involuntary resettlement due to land needs. As a founding principle this should be avoided, while for cases where land acquisition is inevitable, WB OP/BP 4.12 has been triggered, and the prepared RPF will be implemented and a RAP prepared.

Other social risks include risk of sexual exploitation, sexual and gender based violence and exposure to HIV/AIDS due to increased interaction with construction workers. This will be mitigated through third party monitoring (e.g. community monitoring committees, district and

ward level monitoring, monitoring of contractor through infrastructure audits), the embedding of a rigorous grievance redress mechanism (see annex 18) in all levels of the project design, and community peer education and support groups implemented by NGO facilitators as part of the sub-project CDD process. Social conflicts may increase due to unequal access to new social services (e.g. energy, solid waste management, non-timber forest product, water, land), poor location of infrastructure disrupting access to social services, difficulties in integration between former refugees and Zambians, or household conflict rooted in disruption of traditional gender structures with increased income for women. Mitigation mechanisms for this are embedded in the project design with an inclusive CDD process representing all key stakeholders and communications strategy with wide-spread sensitization of project's eligibility criteria. Details on all identified impacts and mitigation mechanisms are in table 7.

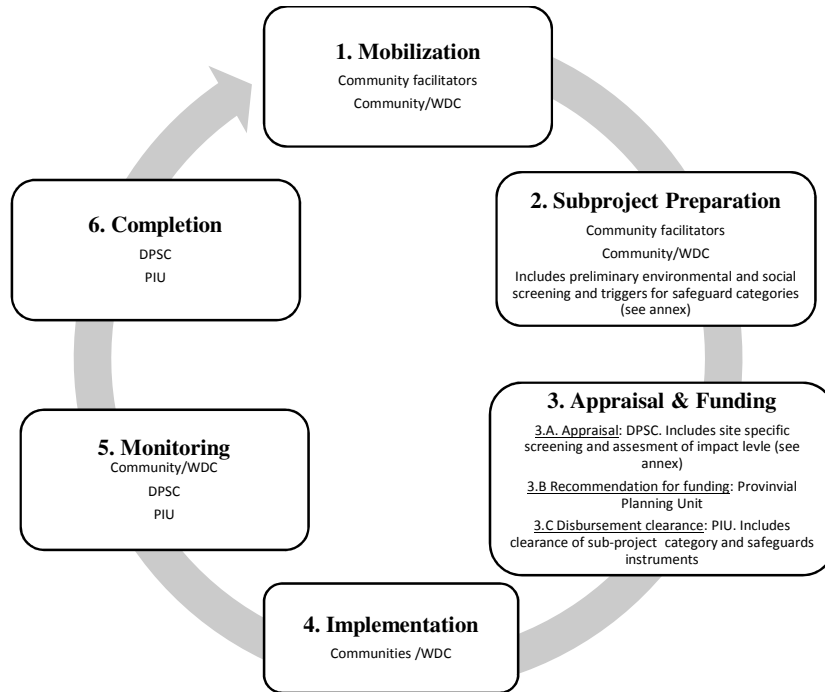
Management system

Implementation of the ESMF will be managed by the Climate Change Secretariat, already implementing another World Bank-funded Project (Zambia: Strengthening Climate Resilience – P127254) with similar triggering of WB safeguard policies and satisfactory track record. The secretariat includes a well trained and experienced safeguards specialist, familiar with World Bank safeguards policies.

For connective infrastructure that involve larger scale physical works, a detailed and specific assessment to identify impacts are required. ESIA and resulting ESMPs will be contracted to be available during the design phase of these infrastructure works, and cleared by ZEMA, facilitated by the environmental and social safeguards responsible at the Climate Change Secretariat. The ESIA is reviewed and cleared by the World Bank Regional Safeguards Advisor. The safeguard instruments for these infrastructure sub-projects are required to be sent in consultation with PAPs. These works and safeguard measures are monitored by ZEMA and the PIU through routine and independent audits.

For sub-projects under the CDD process the management of safeguards will be embedded in the participatory identification of projects. The screening for environmental and social impacts is included in the process for submitting proposals for sub-projects. Please see the responsibilities during the sub-project cycles in the figure below:

Figure 1: Responsibilities and safeguards in sub-project cycle



Legend

WDC: Ward Development Committee.
 DPSC: District Planning Sub-Committee

ESMF outline

The first three Chapters (Chapters 1 to 3) of the ESMF provide background information that starts with a description of the proposed project which is followed by a brief explanation of the methodology used in formulating the ESMF as well as baseline information obtaining in the target project areas.

Chapter 4 provides an overview of the World Bank Operational Policies and national environmental management policies and regulations. The following World Bank Operational policies will be triggered and will apply to all sub-projects funded under the Displaced Persons and Border Communities Project.

The last four chapters of the ESMF provide guidelines on potential environmental and social impacts that are anticipated for various proto-type sub-projects, respective possible mitigation measures as well as relevant institutional arrangements for implementation and monitoring of safeguards. Chapter 8 of the ESMF takes into account prevailing institutional capacities and needs and recognizes the need for capacity building in safeguards application and monitoring.

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ACRONYMS

AEZ	Agro-Ecological Zones
CC	Climate Change
CDD	Community Driven Development
COR	Commissioner of Refugees
CSO	Central Statistical Office
CSO	Civil Society Organisation
DACO	District Agricultural Coordinator
DDCC	District Development Coordination Committee
DDMMU	District Disaster Mitigation and Management Unit
DIP	Decentralisation Implementation Plan
DMMU	Disaster Mitigation and Management Unit
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIB	Environmental Impact Brief
EIS	Environmental Impact Statement
EMA	Environmental Management Agency
EMP	Environmental Management Plan
EPB	Environmental Project Brief
ESAP	Environmental and Social Assessment Procedures
ESMF	Environmental Social Management Framework
ETo	Evapotranspiration
FAO	Food and Agricultural organisation of the United Nations
GMA	Game Management Area
HSI	Habitat Suitability Index
IBRD	International Bank for Reconstruction and Development
ITCZ	Inter Tropical Convergence Zone
LAC	Local Area Committee
MAL	Ministry of Agriculture and Livestock
MCDMCH	Ministry of Community Development Mother and Child Health
MCTI	Ministry of Commerce Trade and Industry
MLGH	Ministry of Local Government and Housing
MLNREP	Ministry of Lands Natural Resources and Environmental Protection
MMEWD	Ministry of Mines, Energy and Water Development
MSY	Ministry of Sport and Youth
MTWSC	Ministry of Transport, Works, Supply and Communications
NCCDC	National Climate Change Development Council
NCCRS	National Climate Change Response Strategy
NEAP	National Environmental Action Plan
NGO	Non-Governmental Organisation
NPE	National Policy on Environment
NRFA	National Roads Fund Agency
NTFP	Non-Timber Forestry Products
PDCC	Provincial Development Coordination Committee
PPCR	Pilot Programme for Climate Resilience

RDA	Road Development Agency
SESA	Strategic Environmental and Social Assessment
SNDP	Sixth National Development Plan
SPCR	Strategic Program for Climate Resilience
WB	World Bank
ZAMSIF	Zambia Social Investment Fund
ZAWA	Zambia Wildlife Authority
ZBS	Zambia Bureau of Standards
ZEMA	Zambia Environmental Management Agency
ZMD	Zambia Meteorological Department
ZVAC	Zambia Vulnerability Assessment Committee

CHAPTER 1: INTRODUCTION

Project background

On June 24, 2015 the World Bank received a letter from the Ministry of Finance of Zambia requesting participation in the ‘Great Lakes Region, Displaced Persons and Border Communities Project’ for which regional International Development Association (IDA) funds are available under the Great Lakes Regional Initiative.

The proposed Displaced Persons and Border Communities Project- Zambia Component (hereafter Displaced Persons and Border Communities Project) supports both eligible former refugees and host communities in relocation areas and surrounding Districts in both Kaoma and Solwezi Districts. The proposed project will focus on the local integration of targeted and eligible former refugees who are given the opportunity to become full residents in Zambia. The eligible former refugees have the opportunity to move from Meheba and Mayukwayukwa refugee settlements, located respectively in Solwezi and Kaoma Districts, into adjacent new relocation areas, enabling former refugees to get access to land and basic services consistent with national standards which will enable them to sustain and improve agricultural productivity, employment and household income. The project’s main activities will support both eligible former refugees and host communities through a Community Driven Development (CDD) approach with a main focus on connective infrastructure (road/bridge rehabilitation, electricity connection), socio-economic infrastructure (construction/rehabilitation of market, clinic, school, access road, boreholes), small scale livelihoods support (agriculture provision of equipment, input and training), and support to social cohesion and conflict prevention (sensitization, conflict mitigation training, etc.).

Rationale for the ESMF

The World Bank OP/BP 4.01 on Environmental Assessment is triggered in relation to construction and rehabilitation of infrastructure and small livelihood activities. The project is not expected to have long-term, non-reversible, significant negative social or environmental impacts. Construction of connective infrastructure, socio-economic infrastructure, and small livelihood support, may have time-bound negative environmental impacts while no cumulative effect is expected, which could include: loss of vegetation and the cutting down of trees to facilitate construction/rehabilitation of infrastructure and farming activities, disturbances related to construction, increased pressure on both surface and ground water due to abstraction of water from boreholes and rivers, increased incidence of soil erosion due to loss of vegetation cover and the loss of habitat due to changes in land use increased use of pesticides.

Potential negative social impacts could include tensions and conflicts among former refugees and Zambians in the host communities, as well tensions between eligible and non-eligible former refugees. In addition, potential empowerment of women through project support, could lead to household conflict and potential exposure to SGBV. Increased interaction with construction workers, may lead to sexual exploitation and increase the risk of sexual exploitation, sexual and

gender based violence and increased sexual encounters between contractors and local communities including exposure to HIV/AIDS.

Since the specific project activities and locations are not yet known (they will be identified through a Community Driven Development approach during project implementation), the proposed environmental assessment instrument is an Environmental Social Management Framework (ESMF). The ESMF also includes provisions related to:

- (iv) OP/BP 4.04 on Natural Habitats - triggered as the proposed project is likely to result in change of land use. This may directly or indirectly induce significant impacts on the flora, fauna and avifauna. The cutting down of trees and clearing of vegetation for farming activities is likely to change the landscape of the area. The ESMF identifies areas of ecological sensitivity and proposes measures to avoid or if unavoidable, implement mitigation measures that will minimize impacts on fauna, flora and avifauna.
- (v) OP/BP 4.36 on Forests - triggered since both areas have high vegetation and forest cover. The integration of former refugees with the host communities will further increase incidences of encroachment, charcoal production, logging for timber and the cutting down of forests to open up the areas to farming activities.
- (vi) OP/BP on Pest management – triggered as a precautionary measure in relation to possible livelihood support related to agriculture.

Rationale for RPF. In parallel, a Resettlement Policy Framework was prepared. While measures have been taken to avoid as much as possible involuntary resettlement, and very few to potentially no cases are expected to take place, the World Bank Operational Policy OP/BP 4.12 on involuntary resettlement has been triggered as a precaution, in relation to two aspects of the project. The main and central aspect relates to small infrastructure rehabilitation or construction in the context of the execution of sub-grants provided through a Community Demand Driven (CDD) process. The exact location and content of the CDD sub-projects are by nature not pre-defined or identified. For that reason, a Resettlement Policy Framework (RPF) has been prepared specifying the requirements for screening of sub-grants identifying possible cases for which a specific Resettlement Action Plan (RAP) would be required.

In addition, a brief annex was added to the ESMF (annex 16), in relation to a land allocation process being conducted and fully funded by the Government of Zambia, which is being conducted independent of, but also related to, the proposed project.

1.1 Environmental and Social Management Framework (ESMF)

The objective of this ESMF is to provide simple and clear environmental and social management guidelines for the design, planning, monitoring, and implementation of the Displaced Persons and Border Communities Project. The specific objectives of ESMF are to:

1. Establish clear guidelines and procedures for environmental and social planning, review, approval and implementation of sub-projects,
2. Determine the scope of potential impacts, the corresponding mitigation measures and approaches, instruments and methodologies for mitigation and management.

3. Clearly define roles and responsibilities for managing and monitoring environmental and social concerns related to project investments,
4. Determine the training, capacity building and potential technical assistance needed to successfully implement the provisions of the ESMF,
5. Establish the estimated project funding (budget) required to implement the ESMF requirements or provisions.

The approach of this ESMF is built on: (i) the assessment of anticipated environmental and social impacts of the prototype sub-projects of the Displaced Persons and Border Communities Project, and (ii) procedures for mitigating adverse consequences of the sub-projects on the natural and social environment. The approach draws on information generated through review of existing documentation, consultations conducted as part of project design, and experience from the ongoing World Bank funded Zambia: Strengthening Climate Resilience Project, also implemented by the Climate Change Secretariat. It also draws on the views and perspectives of communities, local authorities and other local level stakeholders.

Successful planning and implementation of the Displaced Persons and Border Communities Project will depend on an enabling legal environment that supports environmental management while achieving socio-economic benefits. Legislation and policies provide the legal basis for protecting the environment and supporting the priority responses to climate change. It is also noted that national laws and policies relevant to the Displaced Persons and Border Communities Project cut across several sectors and ministries.

Relevant Zambian environmental and social policies and regulations include:

1. Citizenship of Zambia Act, 1977
2. Disaster Management Act, 2010
3. Employment Act, 1997
4. Environmental Impact Assessment Regulations, 1997
5. Environmental Management Act, 2011.
6. Fisheries Act, 2011
7. Forests Act, 2015
8. Human Rights Commission Act, 1996
9. Immigration and Deportation Act, 2010
10. Lands Act, 1964
11. National Heritage Conservation Commission Act, 1989
12. Public Health Act.
13. Refugees (Control) Act.
14. Roads and Road Traffic Act, 1995
15. Urban and Regional Planning Act, 2015
16. Water Act, 1964
17. Water Resources Management Act, 2011
18. Zambia Wildlife Act, 2015
19. National Policy on Environmental Policy (NPE), 2005

20. National Water Policy, 1994
21. The National Forest Policy of Zambia, 1998

A more detailed analysis of these national policies and relevant legislation is given in Chapter 4 and subsequent chapters.

1.2 Project Description

This component will support: (i) the connection of the resettlement areas with the surrounding wards/districts, and (ii) the local development of the resettlement areas and surrounding host communities.

1.4 Description of Project Components and Sub-Components

Component 1: Socio-economic infrastructure

It should be noted that all activities that are expected to have a physical footprint and could have environmental or social adverse impacts, are part of component 1. This component will support: (i) the connection of the relocation areas with the surrounding wards/districts, and (ii) the local development of the relocation areas and surrounding host communities.

Sub-component 1 (a): Connective Infrastructures Sub-Grants

Subcomponent 1.a. focuses on larger infrastructure designed to connect the relocation areas with the surrounding wards/districts. Connective infrastructures will be identified through a simplified participatory process, conducted at the district and provincial level, with key stakeholders. Infrastructures will be selected based on criteria including the following: (i) contribute to economic and social development, and ultimately to self-reliance of beneficiaries, (ii) benefit both former refugees and Zambians, (iii) the sub-project must demonstrate that it does not increase vulnerability to climate change in the short, medium, and long term. Preference will be given to sub-projects that help foster resilience to climate change, (iv) maintenance and/or staffing must be budgeted for by the relevant authority, (v) only category B and C subprojects can be funded. Example of connective infrastructures are: main road rehabilitation, extension of electric grid, bridge rehabilitation.

Sub-component 1 (b): Socio-Economic Investment Sub-Grants

Socio-economic investment sub-grants will be provided at three levels, namely, district, ward, and community level: District-level grants (for example construction or rehabilitation of school, clinic, market, etc), Ward level grants (boreholes, training center rehabilitation, etc), and Community level grants (hammer mill shelter, school equipment, etc), with specific resources targeted for communities in the relocation areas.

Sub-projects will be identified through a participatory process at all levels, ensured to include vulnerable groups, proposals will be reviewed and vetted by district (community and ward level), and provincial authorities (district, ward, community). The sub-grants will be channeled directly to a bank account of each level of beneficiaries once proposals have been appraised and approved by district-level planning sub-committee (this step will be done at the provincial-level for district-level sub-grants). To be approved, proposals need to meet the requisite eligibility criteria as well as

requirements for safeguards, budget, technical feasibility, and operational and maintenance plans. For infrastructure-type subprojects, the funds will be provided in tranches based on satisfactory completion of agreed milestones, to be monitored and certified by District and Provincial technical staff.

Component 2: Support to climate resilient livelihoods

Support to livelihoods will be supported through: (i) priority access to employment for local population, in the vicinity of the District connective infrastructure as well as socio-economic infrastructures to be funded through the project; (ii) community-level livelihood sub-grants.

Works. To contribute to livelihoods of local populations especially of the most vulnerable, for sub-projects that include contracting of construction companies, low skilled labor will be required to largely come from local populations, including both men and women, former refugees and Zambians, and prioritizing most vulnerable households.

Community level livelihood sub-grants will target up to 4 priority communities identified in the targeted wards, with a specific focus on the relocation areas. Potential subprojects to be financed under the component are expected to compliment and multiply development positive impacts of the socio-economic infrastructures constructed under the Component 1, for example to support capacity building and small materials for vulnerable women's groups to set up a kitchen garden near a market structure, or to provide agribusiness training for a new farmers' group who can benefit from a rehabilitated road to a bigger market.

Component 3: Social Cohesion and Conflict Prevention

The first way to promote social cohesion through the project will through the participatory process in place for component 1, ensuring: (i) full transparency of the process through which sub-grants are allocated, (ii) the design and implementation of a widespread and clear communication strategy on the project, as well as, in collaboration with the Department of Resettlement and Commission for Refugees, on the local integration process, associated benefits and eligibility criteria.

In addition, the project will include: (i) Sensitization sessions on cohabitation and conflict mitigation, during participatory discussions at community, ward, and district levels, (ii) Support to community integration activities including both Zambians and former refugees.

Component 4: Project management

This component will cover regular project management, implementation and supervision of project activities, administration of project procurement and financial management, extensive monitoring and evaluation, and safeguards compliance monitoring. This component will support both the National Climate Change Secretariat, and Provincial level Project Implementation Units, respectively in the Northwestern and Western Provinces.

This component will also include technical assistance to ward and district planning authorities to use the results of the above described participatory process to revise/update/annex the Ward and District Strategic Development plans, ensuring that the relocation areas are fully included in planning documents and processes.

Finally, this component will cover costs associated with inter-regional learning and knowledge exchange such as participation in the proposed regional forum and study tours.

An indicative list of sub-projects under both component 1 and 2 can be found below.

Table 1: List of Suggested Sub-projects

	INDICATIVE LIST OF POSSIBLE ACTIVITIES ELIGIBLE UNDER THE DISPLACED PERSONS AND BORDER COMMUNITIES PROJECT
Connective infrastructure <i>(Sub-component 1 a)</i>	Construction/rehabilitation of roads
	Construction/rehabilitation of bridges
	Connection to electricity grid
	Provision of solar panels
Socio-economic infrastructure <i>(Sub-component 1 b)</i> Access to social services	WARD AND DISTRICT LEVEL
	Construction/rehabilitation of school
	Construction/rehabilitation of clinic
	Construction/rehabilitation of water and sanitation facilities at clinic/ school
	Provision of solar panels for social service infrastructures
	Construction of vocational training centers
	ZONE LEVEL
	Support to community school (solar panels, rehabilitation/construction, provision of books)
	Construction/ rehabilitation of community hall
	Establishment of community level waste management, e.g. composting and recycling schemes
Socio-economic infrastructure <i>(Sub-component 1 b)</i> Economic opportunities	WARD AND DISTRICT LEVEL
	Construction/rehabilitation of market
	Construction of city center to attract private services (bank, postal services)
	Construction/rehabilitation of town center commercial building
	Construction/rehabilitation of training center
	Facilitation of links to micro-finance institutions
	Construction/rehabilitation of wells and boreholes
	Construction/rehabilitation of irrigation systems
	ZONE LEVEL
	Construction/rehabilitation of mill shelter
Establishment of out-grower schemes	
Livelihoods <i>(component 2)</i>	Training, provision of equipment and input for sustainable and/or climate smart agriculture training
	Training, provision of equipment and input for climate-smart livestock production.
	Provision of funds and materials to participate in vocational training
	Development of saving circles
	Equipment and input provision for aquaculture production
	Equipment and input provision for commercialization of non-timber products, e.g. honey
	Commercialization of small-scale production, e.g. creation of bulking center

1.5 Institutional Arrangements

The project will be implemented by the Climate Change Secretariat, currently under the Ministry of Finance, and potentially to eventually fall under the newly created Ministry of Development Planning, under the Vice President. The project will also be implemented in close collaboration with the Commission for Refugees, under the Ministry of Home Affairs, set out to progressively transfer responsibility for the local integration agenda to the Department of Resettlement, under the Vice President. At the national level, coordination will be facilitated through the National Advisory Group for Local Integration, the national arm of the Solutions Alliance, including all key national and international partners involved in the local integration process. In addition, coordination between key Ministries and national institutions involved in the local integration process will continue to take place through the Inter-Ministerial Steering Committee on Local Integration. These two groups are already in place, and will thus include the Climate Change Secretariat.

CHAPTER 2: ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK METHODOLOGY

2. Environmental and Social Methodology

2.1. Review of Literature

Secondary sources of information were obtained through a review of available documents, as well as consultations held with key stakeholders in both locations held as part of a World Bank-UN consultancy from March to October 2015, that resulted in the World Bank-UN, 2015, Joint Recommendations on Improved Local Integration of Former Refugees. Existing literature was the primary source for describing institutional, policy and legal frameworks. From the literature, all possible envisaged environmental and social impacts were listed and evaluated based on policy and legal requirements using matrices and maps. The data on geology and soils, climate, water resources, biodiversity, human and ecosystems were obtained from existing literature.

2.2 Analysis of Baseline Environmental Data

The ESMF recognizes the existence of available environmental baseline information. This data was compiled with the purpose of describing and evaluating the current environmental status of targeted project districts in Kaoma and Solwezi, located in Western and North Western provinces respectively. The baseline information included environmental information relevant to all project components, drawing on existing information from projects in the targeted areas. The description of the baseline environment was based on the following data:

- Physical environment: the information collected included geology, topography, soils, climate and ecosystem and hydrology.
- Biological environment: data on flora, fauna, endemic and endangered species, critical/sensitive habitats, including protected areas and reserves was collected.

2.3 Site Visits and Field Assessments

Site visits and field assessments were intended to gather relevant data and information on the ground, as well as to fill gaps identified during literature review. Several site visits were conducted as part of the design process of the project and preparation of the ESMF, to the interventions areas of the Displaced Persons and Border Communities Project in Mayukwayukwa and Meheba relocation areas, as well as in the surrounding districts. Field visits focused both on environmental and social assessments, and stakeholder consultations. Field visits were also held by an international engineer to review and assess a pre-identified list of sub-projects, in particular connective infrastructures and socio economic infrastructures. Findings on potential design for these infrastructures, as well as analysis of the terrain and potential environment for these infrastructures were discussed into detail with a World Bank safeguards advisor to help assess potential impact and confirm, based on the information available at the time of ESMF preparation that these types of infrastructures would fall within safeguards category B.

2. 4 Interviews and Focus Group Discussions

Consultations with PAPs and members of PAP households, held from March 2015 to October 2015, in the two target areas of the project in the Western and Northwestern Provinces, including with former refugees and Zambians in host communities, as with focus groups of vulnerable people, including women, elderly, youth during consultations. Interviews were also conducted with district officials comprising council officials, local level representatives of the Commissioner for Refugees and UNHCR, local NGOs and CSOs representatives, to discuss project activities and uncover possible environmental and social implications.

PAPs emphasized the importance of the project, and in particular its infrastructure component, in alleviating poverty through improving access to services and economic opportunities. PAPs also mentioned: (i) the need to ensure that an easily accessible grievance redress mechanism is in place, for them to raise grievances in case any issue emerges, (ii) the need to make sure those affected by forced displacement will receive support tailored to their specific needs, with a focus on the needs of the most vulnerable groups and people (addressed in the RPF).

Additional consultations and discussions were held with representatives of local authorities and decentralized ministries in both the Western and Northwestern provinces during the project pre-appraisal in February 2016. Authorities met were all very supportive of the project, and emphasized the following aspects:

(ii) Infrastructure and livelihood support. Stakeholders consulted supported the focus on infrastructure, and emphasized the importance of supporting livelihoods, especially for the most vulnerable groups;

(iii) Climate resilience and environmental safeguards. In both locations, representatives of the Forest Department and of the Ministry of Agriculture supported the project's focus on climate resilience, and reiterated the importance of closely monitoring the project's compliance with environmental safeguards;

(iv) Social Cohesion. In a context where stigmatization of refugees/former refugees remains an issue, a number of stakeholders, in particular in the Western province, reminded the team to include adequate mechanisms to support social cohesion, and welcomed the fact that project benefits would be shared between former refugees and Zambians; and

(v) Community Driven Demand Process. In the Western Province, where planning authorities have experience with the ongoing Zambia: Strengthening Climate Resilience Project, it was recommended to ensure the simplification of the sub-project cycle, to limit back and forth and facilitate a speedy implementation of sub-projects, to maintain community's momentum and provide timely assistance.

All above mentioned points have been addressed through project design, as well as in the ESMF and the RPF.

2.5 Mapping of Stakeholders in Intervention Areas

A mapping exercise of non-governmental actors engaged in the geographic intervention areas of the project was undertaken. The mapping was conducted through interviews with UN agencies, bilateral donors, INGO, and civil society organizations and in Lusaka, Meheba, Mayukwayukwa, Solwezi and Kaoma towns. The mapping aimed to uncover the main stakeholders in the intervention areas, the type of the activities, outline potential synergies for project design and implementation, and identify potential environmental and social issues already existing, and potentially arising as a consequence of the project.

2.6 Analysis of Safeguard Policies and Regulations

Projects funded by the World Bank, should fully comply with the World Bank safeguard policies and National legislation.

Relevant policies triggered are the following:

- OP/BP 4.01 for Environmental Assessment (EA), in relation to construction and rehabilitation of infrastructure and small livelihood activities, including agriculture,
- OP/BP 4.04 for Natural Habitat, as the proposed project is likely to result in change of land use,
- OP/BP 4.36 for Forests, since both areas have high vegetation and forest cover, and integration of refugees will further increase pressure on forest resources,
- OP 4.09 for Pest Management, in relation to potential pest usage as part of small livelihood support related to agriculture, and
- OP/BP 4.12 for Involuntary Resettlement, is triggered as a precautionary measure for verifying the absence of claims to land identified for usage during the project.

The relevance of safeguard policies on this project's planning and implementation of the components and associated sub-projects in Kaoma and Solwezi was assessed. The World Bank Safeguard policies also require compliance to all relevant national and international policies and legal requirements. The baseline assessment in chapter 3 provides the rationale for triggering the policies. Chapter 4 describes in detail the rationale for triggering each policy from the baseline assessment. Additionally the relevant national policies and legislation have been reviewed in the subsequent chapter 4. In the Zambian context, the Zambia Environmental Management Agency (ZEMA) is the competent authority in the approval of safeguards instruments and post-approval monitoring. Chapter 5 outlines the analytical work, management and monitoring instruments following the described triggering rationale in chapter 4.

CHAPTER 3: PROJECT BASELINE INFORMATION

3.1 Baseline information

Baseline information includes description of the current situation in terms of the socioeconomic environment, ecological and physical environment.

3.2. Socio-Economic Baseline of Kaoma and Solwezi

The economy of Kaoma in Western Province is based on natural resources related activities such as agriculture, fishing, timber exploitation, crafts and livestock as well as trading. Agriculture is the major economic activity in the district. The district has a considerable amount of natural resources (rivers, lakes, grass, timber, fish, etc.), which have not yet been exploited to full potential for the benefit of the local people. Most of the natural resources are exported from the district in semi-processed form (timber, fish, cattle, etc.) thereby reducing the "value addition" to the local economy (CSPR, 2011).

Solwezi district is the administrative and provincial headquarters of the North Western province. According to the Central Statistics Office census of 2010, the population of Solwezi was estimated at 254,470 (CSO, 2010). Over the last decade, the district has seen an influx of economic migrants from other provinces of Zambia coming to work in the mining operations at Lumwana and Kansanshi Mines. The livelihoods in most communities around Solwezi are based on small home based businesses and non-specialized skills employment that are related to the mines. Other activities are based on farming in which maize, cassava, sweet potatoes and vegetables for the local markets are grown. Solwezi district by virtue of being a provincial center, has a large civil service community whose income contributes immensely to the economy of the district.

The population growth in Solwezi district is projected to be 2.4% annually, while Kaoma district is projected to grow at an annual rate of 1.4, compared to the national average of 2.7%¹. No data is available on the population growth in the intervention areas of the project compared to the surrounding areas, which would be able to indicate if pressure on land could be expected to rise. There is land available in the intervention areas, in particular in the GRZ relocation schemes (see annex 16 for an overview of the GRZ relocation schemes), and the Resettlement Policy Framework for this project concludes that based on the amounts of land available, future land and displacement related risks are low.

3.2.1 Kaoma and Solwezi District Physical environment

Kaoma District located in the Eastern part of Western Province of Zambia, and covers an area of 23,315km². It lies between longitudes 24° and 26° east and between latitudes 14° and 16° south. It is

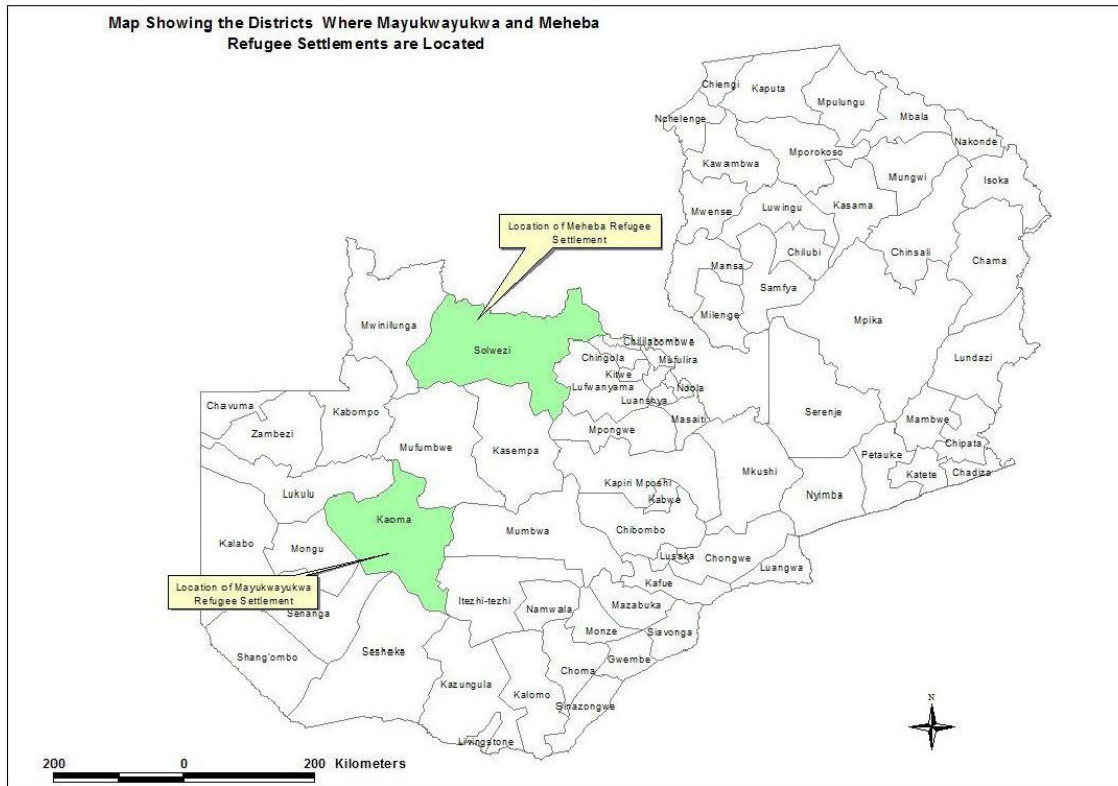
¹ Projection 2011-2020

situated 400km west of Lusaka on the all-weather road that links to the provincial capital, Mongu. About 60% of Kaoma District is arable land.

Solwezi is located 170km from the Copperbelt town of Chingola in North-Western Province. The town which is also the provincial and administrative capital and sits at an elevation of 1,235 meters above sea level. The three main mines in the town are Kansanshi Mine located about 10 km north on the Solwezi -Kipushi Road, the Lumwana mine located some 80km west of the town and near Meheba refugee settlement and Kalumbila Mine 160km from the town of Solwezi.

Figure 2: Location of Mayukwayukwa and Meheba Relocation Areas





Source: Google Maps and Strategic Framework for the Local Integration of Former Refugees in Zambia, GRZ 201, p. 5

3.3 Topography, Geology and Soils

i. Topography

The topography of the proposed relocation area in Meheba is similar to many parts of Solwezi including the Lumwana mining area located adjacent to the site. The topography is dominated by gently rolling hills formed by the erosion of the upland plateau and defined by the drainage pattern of the Lumwana East River and its tributaries. Although there is little discernible difference in altitude across the immediate project area, many of the watercourses flow through deeply incised valleys. In forested areas away from rivers and streams, slopes are gentle with gradients of between 1.5 and 3.0%. (Lumwana Copper Project, 2015). Similar topographic terrain extends to Kaoma district as they are in close proximity.

ii. Geology

In general terms Western Province consists of an extensive sand-covered Pliocene plain whose recent geomorphological history has considerable bearing on the soil and vegetation of the area, and hence on land use. The whole of Western Province is presumably underlain by the Pre-Cambrian basement complex. Upper Katanga schists, siltstones, and end-Kundelungu acid igneous rocks which intrude into the siltstones, occurring North of Kaoma, and in the valleys of the Lalafuta and Dongwe rivers. The siltstones have been altered to schists in the vicinity of the granitic intrusions. The Karroo beds are mainly clastic sediments, sandstones, mudstones, grits, shales, etc., of continental origin and of very variable thickness. In places they are overlain by basalt. A section at the junction of the Kafue and Zambezi rivers consists of over 1 067 m of strata, 244 m of which are basalt. Karroo deposits are well exposed in the vicinity of Livingstone; and the bed of the Zambezi above Victoria Falls as far as Senanga has been protected by Karroo basalt. Occurrences of basalt in the Kaoma area show that outcrops in the Luena valley (Verboom W.C. and Brunt M.A., 1970).

In Solwezi, the geology of the area is predominantly that of the Copperbelt, which consists of deformed sedimentary rocks (Katanga super-group). The Katanga system contains all the major copper deposits in Zambia and Congo DR. A prominent feature of Katanga system is that besides the lime-stones and dolomites, many of the formations are calcareous or dolomitic in nature. In the relocation areas and Solwezi district, the area has an underlay of dolomite rock alternating with calcite rocks² with pockets of metasiltstone/phyllite and foliated granite/gneiss including quartzite. The Southeast of the proposed area is underlain by metasiltstone/phyllite and foliated granite/gneiss of the Katanga basement and arkosic quartzite towards the south. The basement and Katanga rocks (argillite, quartzite, shale, limestone and dolomite) form open folds towards the South West while the rocks in the North East form an overturned fold belt. The

² It will need to be further investigated if there are any carstic phenomena

metasilstone/phyllite and foliated granite/gneiss is overlain by laterite or/and silty clay and loam soils that can be poorly drained (TAZAMA EISA, 2014).

iii. Soils

Kaoma soils are predominantly a well-drained sandy loam (65%) with varying topsoil depth of 100–150 mm in the relatively flat uplands. There are areas of sandy clay loam in the lower parts of the district. In terms of soils in Solwezi District, the district is covered by thick red brown to yellow-brown and light textured, silt or sandy clay (loamy soil) including laterite at depth. The soil can generally be categorized as ferrasols (high iron content) underlain by the rocks of the basement i.e. metasilstone/phyllite with quartzite and foliated granite/gneiss (TAZAMA EISA, 2014). Soil erosion and degradation is common in Kaoma which is a semi-desert and very sandy. The increased loss of vegetation cover has compounded this problem. For Solwezi, the area has significantly high forest cover which helps minimize soil degradation.

iiii. Air Quality Kaoma and Solwezi

In Solwezi and Lumwana area, the air quality has been relatively good but the last decade has seen the opening up of large mining operations that are likely to effect emission standards in the area. In areas away from the mining activities field observations indicate that the general air quality in the area is good. However, seasonal variation as well as localized and temporal deterioration in air quality does occur. Grassland and forest fires, charcoal production and traditional *Chitemene* slash and burn agriculture during the dry season generates smoke and dust. This smoke hangs over the area and forms a distinctive haze. The haze layer is mainly visible from the air and worst during the coolest months (June and July) when temperature inversions tend to trap the smoke near ground level. The haze lasts until the arrival of the rains in November. Localised and temporal air quality deterioration is also associated with village domestic fires. Vehicular emissions have also seen an increase with increased disposable income as the residents are buying more cars resulting in increased traffic in Solwezi and the outskirts of town. In Kaoma air quality is still good and the same is true for surrounding areas up to Mayukwayukwa 80km away. The district has very low traffic and vehicular emissions are very low apart from the dust levels that emanate from the surface of the unpaved dirt roads. Charcoal production, bush clearing for agricultural purposes and bush fires are the other major sources of smoke that affects the quality of air in the district.

3.4 Climate

i. Seasonal variations

Kaoma and Solwezi have tropical and sub-tropical climate with two main seasons: the rainy season (November to April) corresponding to summer, and the dry season (May to October/November), corresponding to winter. The dry season is subdivided into the cool and dry season (May to August), and the warm and dry season (September to October). The rains in the project areas are caused by the convergence of the North East and South East

ii. Rainfall patterns

Solwezi district experiences a semi-equatorial type of climate, characteristic of high temperatures and high rainfall occurrences. The rainy season stretches from the end of October until the end of April. The district receives an average of 1,100mm of rainfall per year. It is a high rainfall area, characteristic of the highest rainfall figures in Zambia. However, these have become less predictable due to climatic deviations away from the normal. But, generally, the rainfall reliability in Solwezi is still very high, with little or no drought risks (days during rainy season). The number of rain days is estimated at 190 while the length of the growing season is way over 200. The mean annual precipitation in the area is between 1,000 and 1,500mm.

Kaoma and Solwezi like any other parts of the country, have a tropical climate with three distinct seasons: the warm-wet season, stretching from November to April with mean temperature of 26°C; cool dry season from May to August with mean temperatures varying between 14 and 24 °C. The hot dry season is experienced during the months of September and October with mean temperature of 32 °C. The minimum temperatures are also at their lowest in June and July, averaging between 5 and 8 °C, and they, too, show a fairly rapid rise into October. They continue to rise until December and January, when they are maintained at about 17 °C until the end of the rains. The rains in the project area are caused by the convergence of the North East and South East trade winds that form the Inter-tropical Convergence Zone (ITCZ). The area experiences early rains before most parts of Zambia and the late rains, as the ITCZ moves northwards later than the southern part of the country, so that the rainy season is relatively longer and the mean annual rainfall relatively higher. The average length of the rainy season is just over five months with December, January and February experiencing the highest rainfall while November and March have less. The annual rainfall averages is 1240mm (Mumbwa – Kalumbila – Lumwana Project, 2012).

Kaoma experiences very distinct seasons which relates to the 800–1,000 mm annual rainfall distributed between November and April. Temperatures can be as high as 34°C in the driest period of October–November and during the cool period of June–July can fall as low as 5°C. In terms of temperature in Solwezi, the winter months of May to July are generally cool and dry with maximum temperatures ranging from 18 to 25°C. The months of August to October are increasingly warmer and drier, with average daily temperatures of ranging from 30-34°C. However, as the rain begins around November, hot conditions become moderated by rainfall and can fall to about 23-26 °C.

3.5 Hydrology

Due to the impervious dolomitic underlay, water logging does occur in some areas of Solwezi district. With regard to surface water, logging can be common during heavy rainy season due to poorly drained fine clay-like loamy soils. For ground water, much of the ground water movement to the surface is through capillary action which is efficient in fine soil types such as clays (vertisols). The water table is low due to the rock structure underlying the project site presumed to be an intensely hematized clay/rock and biotite schist in origin due to its strongly hematized state. Surface and ground water sampling test should be considered at strategic points to inform design of water supply and irrigation.

3.6 Flora and Fauna

3.6.1 Flora Kaoma

Kaoma is a large district almost entirely covered by sands of Kalahari type. It stretches from Sesheke in the South to the Dongwe River in the North, bordering Senanga and Mongu on the West and the Namwala, Mumbwa and Kasempa sections of the Kafue National Park (KNP) to the East. The North East tip of Kataba Forest (*Baikiaea* forest at its best) is inside the district and there are pockets of miombo woodland along the Luena River, the KNP boundary in the East and along the Lalafuta and Dongwe rivers. The Kalahari sands thin out as they approach the Dongwe, and a number of pockets of anomalous vegetation occur in this region. These include *Brachystegia bussei* woodland, *Julbernardia globiflora* scarp miombo, *Pteleopsis chipya* on Kalahari sands and Copperbelt type chipya with *Entandrophragma*. The sand cover carries Kalahari woodland south of the Luena and along the Dongwe River, and dry evergreen forest (mavunda) north of the Luena River. The total woody flora is in the region of 700 species (Fanshawe D.B, 2010)

3.6.2 Flora Solwezi

The vegetation of Solwezi is predominant Miombo woodland which is dominated by trees of the genera *Brachystegia*, *Julbernardia* and *Isoberlinia*. This vegetation is virtually a Western extension of the Chingola vegetation. There are basically eight vegetation types in the area namely, Miombo woodland, Parinari forest, Lake basin Chipya, swamp forest, grasslands, Riparian forest, Termitaria vegetation and bush groups and Kalahari woodland on sands. The woodlands are of significant importance to the region, as they have a number of ecological functions including providing habitat, soil protection, and overall they are a source of food, fuel, medicines fruits, seed, and honey. Miombo woodlands is the dominant vegetation are a single storey, deciduous, closed canopy woodland. It is composed principally of Muombo – (*Brachystegia*), Mutondo-(*Julbernardia*) and Mutobo-(*Isoberlinia*), which yield hard, heavy timber, suitable especially for mining. This woodland also supports beekeeping to local people. In Parinari Forest the canopy of this vegetation is dominated by Mobola – (*Parinari excels*) and Musepa (*P. Curatellifolia*). Other species that may be found in the canopy are Water Berry- (*Syzygium guineense* ssp *afromotatum*) with odd emergent *Entandrophragma devevayi*, *Marquesia macroua* and *Erythrophleum suaveolens*. The vegetation is predominantly along the Meheba stretch.

Lake Basin Chipya is characterised by the effects of fierce fires which consume the dense ground cover of tall Hyperrhenia grass (*Elephant Grass*) and other species which gradually kill out tree growth. It is an open woodland with a discontinuous canopy whose composition is variable, but which particularly includes Muputu-(*Brachystegia spiciformis*) – Ordeal Tree (*Erythrophloeum africanum*), and Mubuta (*Brachystegia longifolia*) associations as well as pure stands of Mutobo (*Isoberliana angolensis*). Swamp Forest are closed evergreen canopy characterised by *Ilex mitis*, *Mitigyna stipulosa*, Water Berry (*Syzygium cordatum*), *Xylopi aethopica* and *X. rubescens*. The swamps are not extensive, but provide a useful function in helping to regulate the flow of water. Swamps can be found in the Jivundu area.

Grasslands are greatly associated with the drainage lines. They are associated with the streams and rivers: flood plains of the larger rivers like the Lunga, East Lumwana and Kabompo. Riparian forest Strips of fringing forests that occur along most of perennial streams. They are characterised by *Diospyros mespilliformis*, *Khaya nyasica*, *Parinari excelsa* and *Syzygium cordatum* associated with *Adina microphila*, *Bridelia micrantha* and *Faurea saligna*.

Termitaria vegetation and bush groups includes all forms of vegetation that are found on or around the bases termitaria including the types Miombo termitaria, characterised by *Albizia amara*, *Boscia angulosifolia*, *Combretum molle*, *Commiphola mollis*, *Erythrina abyssinica* and *Zizophus macronata*. Munga termitaria characterised by Large leaved false thorn (*Albizia harveyi*), Large fruited Bush Willow (*Combretum imberbe*), False Marula (*Lannea stuhlmani*) and *Musesi* (*Markhamia acuminata*). Kalahari woodlands on sands vegetation type is local occurring only in the South West corner of Solwezi District and Kaoma. This vegetation type is unique to the Western Province of Zambia and extends into Namibia (North West Rail, 2012).

3.6.3 Fauna Kaoma

i. Mammals

The area near Kaoma is very rich in wildlife. It is particularly so owing to the number of protected areas, with very rich biodiversity found in the area. The project area includes the Lunga –Luswishi, Kasonso - Busanga and the Matebo - Musele GMAs in Mumbwa, Kasempa and Solwezi Districts respectively. Only the Lunga – Luswishi and the Kasonso – Busanga GMA No. 32 are near Kaoma district.

Lunga Luswishi has 19 species of large herbivores which have been documented. These include elephant (*Loxodonta africana*), sable antelope (*Hippotragus niger*), buffalo (*Syncerus caffer*), hippopotamus (*Hippopotamus amphibius*), puku (*K.vardoni*), sitatunga(*Tragelaphus spekii*), roan antelope (*H. equinus*), hartebeest (*Alcelaphus buselaphus lichtensteini*), waterbuck (*K.ellipsiprymnus*), reedbuck (*Redunca arundinum*), impala, warthog. Several species of carnivores also exist. These include lion (*Panthera leo*), cheetah (*Acinonyx jubatus*), wild dog (*Lycaon pictus*), leopard (*P. pardus*), and spotted hyena (*Crocuta crocuta*). Species of omnivores and rodents include porcupine, squirrels, cane and mole rats are also found. Three groups of primates are found in the area including kinda baboons (*Papio cynocephalus kindae*), vervet monkeys (*Chlorocebus pygerythrus*) and bush baby (*Galago senegalensis*). (Mumbwa – Kalumbila – Lumwana Project, 2012).

Kasonso Busanga is home to several wildlife species and has a total of 11 species of large mammals. Among the species that are found in the area some are vulnerable animals. These include hartebeest hartebeest (*Alcelaphus buselaphus lichtensteini*) sable antelope (*Hippotragus niger*), kudu (*T. strepsiceros*) eland (*Taurotragus oryx*), elephant (*Loxodonta africana*), sable antelope (*Hippotragus niger*), buffalo (*Syncerus caffer*), hippopotamus (*Hippopotamus amphibius*), puku (*K. vardoni*), Sitatunga (*Tragelaphus spekii*), roan antelope (*H. equinus*) and spotted hyena (*Crocuta crocuta*). Species that are threatened include the roan antelope, puku and yellow backed duiker. The Kasonso Busanga also has the blue duiker (*Cephalophus monticola*) and pangolin (*Manis temminckii*), which are both listed as locally rare.

ii. Birds

The areas have a variety of bird species. Some of the most notable include marabou (*Leptoptilos crumeniferus*) and saddle bill storks (*Ephippiorhynchus senegalensis*), white backed duck (*Dendrocygna viduata*) and wattled cranes (*Bugeranus carunculatus*). Vulnerable bird species thought to occur in the area include wattled crane (*Bugeranus carunculatus*), lappet faced vulture (*Torgos tracheliotus*) and white headed vulture (*Trigonoceps occipita*). However, common birds in the project area include love birds (*Agapornis*), crested guineafowl (*Guttera pucherani*), pied crow (*Corvus albus*), black shouldered night jar (*Caprimulgus nigriscapularis*), kites (*Milvus migrans*, *Elanus caeruleus*), owl (*Tyto capensis*), hawks (*Buteo rufinus*, *Accipiter nisus*, *Melierax metabates*), bronze sunbird (*Nectarinia kilimensis*) and laughing dove (*Streptopelia senegalensis*) (Mumbwa – Kalumbila – Lumwana Project, 2012).

iii. Reptiles

Reptile species found in the area include representatives of the lizards (*Lacertilia*), chameleons (*Chamaeleo dilepis*), tortoise (*Testudinidae*) and various species of snakes such as black mamba (*Dendroaspis polylepis*), black-necked spitting cobra (*Naja nigricollis*), boomslang (*Dispholidus typus*), and puff adder (*Bitis arietans*). The Nile crocodile (*Crocodylus niloticus*) and water monitor (*Varanus niloticus*) are also present in some rivers.

iv. Fish

The streams and rivers in the area have a variety of fish species which are caught by fishermen, although the fish stocking levels are low. Common fish species include barbel fish (*Clarias gariepinus*), red breasted bream (*Tilapia rendalli*), dwarf bream (*Taplochromis philander*) and green headed bream (*Oreochromis macrochir*) (Mumbwa – Kalumbila – Lumwana Project, 2012).

3.6.4. Fauna Solwezi

i. Mammals

In North Western province an increase in human population resulting in the opening up of new areas for settlement, mining and cultivation and the resultant illegal hunting of wildlife, most species of wildlife do not exist in open areas, except rodents and rabbits. Common mammals in protected areas of NW Province include monkeys (*Cercopithecus aethiops*, *Papio ursinus*), antelopes

(*Tragelaphus scriptus*, *Sylvicapra grimmia*, *Cephalophus monticola*, *Tragelaphus oryx*, *Tragelaphus strepsiceros*, *Aepyceros melampus* and *Hippotragus equinus*), zebra, lion (*Panthera leo*), leopard (*Panthera pardus*), spotted hyena (*Crocuta crocuta*), wild dog (*Lycaon pictus*), wild cat (*Felis silvestris*), otter (*Aonyx capensis*) and honey badger (*Mellivora capensis*).

ii. Birds

Since the area covers both the plateau and the valley, both waterfowl and woodland bird species are common. Woodland bird species common in the area include kites, sparrowhawks, doves, and vultures. Common waterfowl species include a wide variety of wild ducks, herons, egrets, and geese.

iii. Reptiles

Reptile species that occur in many part of North Western province and Solwezi include representatives of the lizards, chameleons, tortoise and various species of snakes, such black mamba (*Dendroaspis polylepis*), black-necked spitting cobra (*Naja nigricollis*), Boemslang (*Dispholidus typus*), and puff adder (*Bitis arietans*). The Nile crocodile (*Crocodylus niloticus*) and water monitor (*Varanus niloticus*) are also present in some rivers (Northwestern National Grid, 2011).

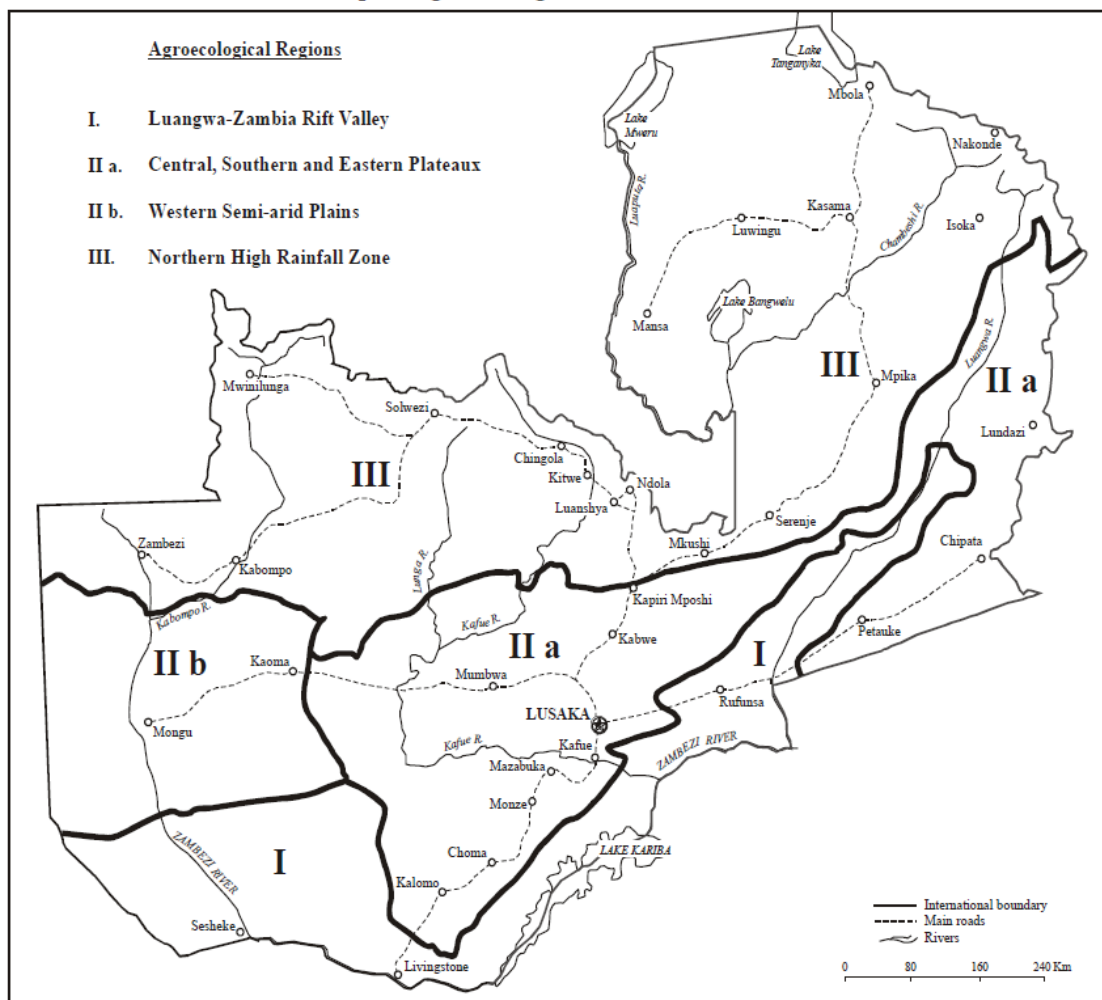
3.7 Land Cover and Land use

3.7.1. Agriculture

Kaoma is within an area often considered a part of agro-ecological Zone II of Zambia, but is differentiated by lower rainfall and sandier soils, poorer road and market infrastructure, high risk of droughts, mainly sorghum and millet as staple crops along with cassava, with some maize also being grown. This drought prone area is also suited to extensive livestock production, cashew nuts, and timber. Solwezi however, falls within Zone III a high-rainfall area in the North of the country which include Copperbelt, Luapula, Northern and North Western Provinces. The major crops produced are cassava, maize, groundnuts, millet, sorghum, beans and sweet potatoes; and small-scale fishing and fish-trading is also a source of income (Profile of Zambia's Smallholders, 2008).

Figure 3: Agro - Ecological Zones showing Kaoma and Solwezi

Map 1 Agro-Ecological Zones of Zambia



Source: FAO (2005)

3.7.2. National Parks, Game Management and Protected Areas

Kaoma and Solwezi are located in areas where national parks, game management and protected areas are present. There is considerable distance between the settlements and the national parks, game management and protected areas, but connectivity is bad, and there is not a large scale traffic towards these areas.

The following are the major protected areas located near the districts (as in the map below). The Mufunta Game Management Area falls within the Zambebian biome and is located on the Western side of Kafue National Park (IUCN Category II; area of 22,400 km²; 150 12'S – 250 38'E) between longitudes 24° 50' to 25° 35' East and latitudes 14° 36' to 15° 58' South covering about 6,555 km² in extent (Fig. 3). The Kafue National Park, partially surrounded by eight Game Management Areas, lies South West of Lusaka. The nearest administrative settlement is Kaoma, which is about 410 Km west of Lusaka in the Western Province. The Lusaka – Mongu highway, which is an all-weather road, passes on the Northern boundary of Mufunta making accessibility to the area feasible throughout the year. Until recently in 2007, the Game Management Area had no legal status, a situation that led to unsustainable and illegal harvesting of natural resources. Unsustainable and illegal activities include illegal:

- (i) Fishing methods such as the use of mosquito nets, application of poisons in rivers, streams and dambos to kill fish, catching of juvenile fish and fishing during the fish breeding seasons;
- (ii) Harvesting of forest products such as timber of *Guibourtia coleospermum* for commercial sale in Lusaka;
- (iii) Off-take of various species of wildlife;
- (iv) Agricultural activities and application of agrochemicals in ecologically sensitive environments such dambos, plains and pans (Mufunta GMA, 2008).

Figure 4: National Parks and Game Management Areas close to Kaoma and Solwezi
 (Source: kafuenationalpark.info, 2015)



3.7.3. Specific observations for the location of connective infrastructure

Specific observations for the location of connective infrastructure which has been suggested in consultations (see table 9 and Annex 2 with maps and consultations from the WB-UN Report on Local Integration on specific larger scale infrastructure needs in the two relocation areas):

- The relief is undulating, with shallow slopes and wide plains between ridges, a geologically very mature and stable landscape.
- The natural vegetation is a savannah type forest, with closed tree cover on ridges, and sparse trees and grass in dambo areas. In the prospective project area the natural vegetation has largely been replaced by agricultural land, leaving only small patches and galleries of forest, often along floodplains.
- The current refugee camp, and planned relocation area both lie in an area which has evidently developed as settlement and agricultural area before. There is an access road from the main road, a grid of local roads spaced about 1 km apart, covering an area of at least 10x20 km (= ca. 200 km²).
- This area is characterized by a complete conversion from natural land cover to agricultural land and human habitations.

- To the West of this area the land cover becomes rapidly more natural and undisturbed, albeit with some evidence of human activity.
- About 10 km NE of the current refugee area a large mine is situated, which adds to the existing anthropogenic impacts in the area.

The Mafwe bridge (see Annex 2) is located SSW of the planned relocation area, where human activity is sparser, but evidenced by existing roads, agricultural activity and settlements. The bridge itself would be a relatively small span at an existing bridge location, as would be the required causeway over a floodplain close to the river.

CHAPTER 4: WORLD BANK ENVIRONMENTAL AND SOCIAL SAFEGUARD POLICIES AND ZAMBIAN ENVIRONMENTAL LEGISLATION

This chapter reviews the World Bank safeguard policies, national strategic plans and policies, the Environmental Management Act (EMA), ZEMA EIA regulations and other relevant country acts. The World Bank safeguards policies and national legislation apply to all the proposed intervention areas.

4.1 World Bank Safeguard Policies Overview

As a key financing institution, the World Bank is committed to supporting developmental projects, while eliminating or minimizing any adverse impacts or risks on the environment, society and human health. These impacts can be severe or moderate, localized or regional, short or long term. In order to minimize and manage environmental and social impacts, the Bank's operational policies are triggered and the environmental assessment (EA) is key process of the Bank due diligence. These safeguards provide a mechanism and tools for ensuring integration of environmental concerns and social issues into the planning and implementation of development projects financed by the Bank.

The Bank has a total of ten safeguard policies which can be triggered depending on the nature and complexity of the proposed projects or sub-projects. In the context of the proposed Displaced Persons and Border Communities Project, and the associated sub-projects, five (5) of the ten (10) safeguard policies have been triggered. The table below shows the World Bank safeguard policies that have been triggered to mitigate possible impacts during the project and in associated sub-projects.

Table 2: World Bank Safeguard Policies

WORLD BANK SAFEGUARD POLICIES			
Policies triggered for the proposed Displaced Persons and Border Communities Project and associated sub-projects		Yes	No
1	OP/BP 4.01: Environmental Assessment	X	
2	OP/BP 4.04: Natural Habitats	X	
3	OP/BP 4.09 Pest Management	X	
4	OP/BP 4.10: Indigenous Peoples		X
5	OP/BP 4.11 Physical Cultural Resources		X
6	OP/BP 4.12: Involuntary Resettlement	X	

7	OP/BP 4.36: Forestry	X	
8	OP/BP 4.37 Safety of Dams		X
9	OP/BP 7.50: International Water Ways		X
10	OP/BP 7.60: Disputed areas		X

4.2 Project Relevance of World Bank Operational Policies and Procedures

The table below further illustrates the reasons why the World Bank safeguard policies have/or not been triggered and their relationship to possible activities on the on the integration of former refugees and associated sub-projects.

Table 3: WB Safeguard policies and their relevance to resettlement and integration of former refugees

Safeguard Policies	Triggered	Relevance of World Bank Safeguards polices to the Integration of former refugees and associated sub-projects
Environmental Assessment OP/BP 4.01	Yes	The World Bank OP/BP 4.01 on Environmental Assessment is triggered in relation to construction and rehabilitation of infrastructure and small livelihood activities. The project is not expected to have long-term or significant negative social or environmental impacts. Construction of connective infrastructure , socio-economic infrastructure, and small livelihood support, may have potentially marginal negative environmental impacts and no cumulative effect, and could include: loss of vegetation and the cutting down of trees to facilitate construction/rehabilitation of infrastructure and farming activities, disturbances related to construction, increased firewood demand for cooking, increased pressure on both surface and ground water due to abstraction of water from boreholes and rivers, increased incidence of soil erosion due to loss of vegetation cover and the loss of habitat due to changes in land use. Potential negative social impacts could include tensions and conflicts among former refugees and Zambians in the host communities, as well tensions between eligible and non-eligible former refugees. In addition, potential empowerment of women through project support, could lead to household conflict and potential exposure to SGBV. Increased interaction with construction workers, may lead to increased sexual encounters between contractors and local communities including exposure to HIV/AIDS. Since the specific project activities and locations are not yet known (they will be identified through a Community Driven Development approach during project implementation), the proposed environmental assessment instrument is an Environmental Social Management Framework (ESMF).
Natural Habitats OP/BP 4.04	Yes	The Bank policy on Natural Habitats is triggered as the proposed project is likely to result in change of land use. This may directly or indirectly induce significant impacts on the flora, fauna and avifauna. The cutting down of trees and clearing of vegetation for farming activities is likely to change the landscape of the area. The ESMF identifies areas of ecological sensitivity and proposes measures to avoid or if unavoidable, implement mitigation measures that will

Safeguard Policies	Triggered	Relevance of World Bank Safeguards polices to the Integration of former refugees and associated sub-projects
		minimize impacts on fauna, flora and avifauna. The ESMF has highlighted critical natural habitats areas in close proximity to the project sites and evaluated expected impact and proposed mitigation measures.
Forests OP/BP 4.36	Yes	The Bank policy on forests is triggered since both areas have high vegetation and forest cover. The integration of former refugees with the host communities will further increase incidences of encroachment, charcoal production, logging for timber and the cutting down of forests to open up the areas to farming activities. The ESMF proposes mitigation mechanisms for forest protection for the expected impact from the current project design, and requires sub-projects that may lead to major increased pressure on forest resources – if triggered during the screening process - to include mitigation mechanism as outlined in table 6 and 7.
Pest Management OP 4.09	Yes	The policy on Pest Management is triggered as a precaution since sub-projects on agriculture and crop diversification may include the use of pesticide. If sub-projects are likely to lead to major increased use of pesticides – if triggered during the screening process - they will be required to include mitigation mechanism as outlined in table 6 and 7.
Physical Cultural Resources OP/BP 4.11	No	The World Bank policy is not triggered as the proposed project is not likely to affect any Physical Cultural Resources (PCR). Stakeholder consultation during the preparation of the ESMF should include consultation with traditional leaders and elders to help identify any sites or artefacts of cultural significance. Precautionary, any activities financed by the project that are likely to have an impact on PCR, should be identified and mitigation measure incorporated in the ESMP.
Indigenous Peoples OP/BP 4.10	No	The Bank policy on indigenous people is not triggered as the proposed project relocation areas do not have grouping that meet the criteria defined by the policy. Meheba relocation area falls under the traditional leadership of chiefs Mumena and Matebo chiefdoms of the Kaonde people. Kaonde people have for many decades integrated and inter-married across tribal lines. Current mining developments at Kalumbila and Lumwana Copper Mines that are close to the relocation area, have resulted in an influx of workers from other provinces, further transforming the social landscape of the area. The same is true for Mayukwayukwa relocation area that falls under the chiefdom of chief

Safeguard Policies	Triggered	Relevance of World Bank Safeguards polices to the Integration of former refugees and associated sub-projects
		Mufaya of the Nkoya people who have lived side by side with the Lozi's of Western province. Both the Lozi and the Nkoya's are not defined as indigenous people in line with World Bank policy.
Involuntary Resettlement OP/BP 4.12	Yes	While measures have been taken to avoid as much as possible involuntary resettlement, and very few, to potentially no cases, are expected, the World Bank Operational Policy OP/BP 4.12 on involuntary resettlement has been triggered as a precaution, in relation to two aspects of the project. The main and central aspect relates to infrastructure rehabilitation or construction in the context of the execution of sub-grants provided through a Community Demand Driven (CDD) process. The exact location and content of the CDD sub-projects are by nature not pre-defined or identified. For that reason, a Resettlement Policy Framework (RPF) has been prepared specifying the requirements for screening of sub-grants identifying possible cases for which a specific Resettlement Action Plan (RAP) would be required. A brief annex was added to the ESMF outlining the land allocation process implemented and fully funded by the Government of Zambia, which is being conducted independent of, but related to, the proposed project. The land allocated by the Government to eligible former refugees and an equal number of Zambians has been Government-owned for decades.
Safety of Dams OP/BP 4.37	No	The policy is not triggered as the project activities will not involve the rehabilitation/construction of dams that meet Bank criteria. Also, no construction or rehabilitation of water supply or irrigation systems will be financed, that may be dependent on an existing (large) dam.
Projects on International Waterways OP/BP 7.50	No	The policy is not triggered, since the proposed zones of project intervention do not include international waterways.
Projects in Disputed Areas OP/BP 7.60	No	The policy is not triggered as the proposed zones of project intervention are not in a disputed territory.

4.3 Overview of Zambian Legislative and Regulatory Framework

Zambia has over the past two decades developed a number of policies, plans and legislation to guide private and public institutions to pursue environmentally and socially sustainable development agenda in various sectors of the economy. Environmental and social issues are crosscutting and this is reflected in the various legislative frameworks, policies and legal structures that are in place.

This subsequent section outlines some of the policies, plans and current legislation in place that are relevant to the proposed integration of former refugees in Mayukwayukwa and Meheba.

4.3.1 Vision 2030

Zambia's Vision 2030, completed in 2005, is a long-term planning instrument which reflects the collective understanding, aspirations, and determination of Zambia to become a middle income country. The Vision 2030 was developed in response to a 15 year focus on macroeconomic stability and market liberalization which was useful in stabilizing the economy, but did little to address ingrained poverty and socio-economic development. The Vision 2030 signaled a return to development planning and a focus on poverty reduction in Zambia.

In the vision 2030 the country envisages that Zambians, by 2030, aspire to live in a strong and dynamic middle-income industrial nation that provides opportunities for improving the well-being of all, embodying values of socio-economic justice, underpinned by the principles of:

- (i) gender responsive sustainable development;
- (ii) democracy;
- (iii) respect for human rights;
- (iv) good traditional and family values;
- (v) positive attitude towards work;
- (vi) peaceful coexistence and;
- (vii) private-public partnerships.

Vision 2030 principles are relevant to the integration of former refugees into Zambian society as they show the country's commitment to respecting human rights and peaceful coexistence with people from diverse backgrounds.

4.3.2 Sixth National Development Plan (2011-2015)

The current Sixth National Development Plan (SNDP) is the second medium-term planning instrument under Vision 2030. The key theme of the SNDP is "Sustained Economic Growth and Poverty Alleviation", to be achieved through infrastructure development, economic growth and diversification, rural investment and poverty reduction, and enhanced human development. The Goal of the SNDP is to reduce the proportion of people living in poverty with a strategic focus on regional development will be achieved through accelerated rural development by focusing on the following sectors; agriculture, tourism, transport, manufacturing, mining, energy, natural resources, education, health and water and sanitation. The integration and relocation of former refugees in Mayukwayukwa and Meheba align with the goals of the SNDP, as it will help accelerate rural development and increase agriculture productivity.

4.4 Legislation and Policies

Table 4: Overview of Relevant Zambian Legislation

Legislation	Interpretation of Legislation	Relevance to the Project
Citizenship of Zambia Act, 1977	An Act to repeal and replace the Citizenship of Zambia Act; to provide for the establishment of the Citizenship Board and to determine its composition and functions; to make provision for the acquisition of citizenship of Zambia by adoption and by registration; to provide for the confirmation of citizenship of Zambia; to provide for the cesser, deprivation and renunciation of citizenship of Zambia; and to provide for matters connected with or incidental to the foregoing.	The relocation and integration of former refugees from Mayukwayukwa and Meheba will involve the formalization of their legal status in Zambia.
Disaster Management Act, 2010	An Act to establish and provide for the maintenance and operation of a system for the anticipation, preparedness, prevention, coordination, mitigation and management of disaster situations and the organization of relief and recovery from disasters; establish the National Disaster Management and Mitigation Unit and provide for its powers and functions; provide for the declaration of disasters; establish the National Disaster Relief Trust Fund; provide for the responsibilities and involvement of the members of the public in disaster management; and provide for matters connected with, or incidental to, the foregoing.	Changes in the climate have resulted in increased incidences of droughts and flooding requiring that communities be assisted at short notice. The Disaster Management and Mitigation Unit is the arm of government that will respond to natural disasters should they occur in the settlements and surrounding districts.
Employment Act, 1997	An Act to provide legislation relating to the employment of persons; to make provision for the engagement of persons on contracts of service and to provide for the form of and	The Displaced Persons and Border Communities Project will result in the formalization of the permanent legal stay of former refugees in Zambia. This will make give the resettled

	enforcement of contracts of service; to make provision for the appointment of officers of the Labour Department and for the conferring of powers on such officers and upon medical officers; to make provision for the protection of wages of employees; to provide for the control of employment agencies; and to provide for matters incidental to and consequential upon the foregoing.	communities access to employ or be employed. The employment act will safeguard the right of both the employee and employer to enable them work in a conducive and humane environment.
Environmental Impact Assessment Regulations, 1997	A developer shall not implement a project for which a project brief or an environmental impact statement is required under these Regulations, unless the project brief or an environmental impact assessment has been concluded in accordance with these Regulations and the Council has issued a decision letter.	The various activities to be undertaken on the project are likely to trigger environmental and social impact and this will require that site specific environmental instruments be prepared to eliminate or minimize possible impact. At national level the Environmental Impact Assessment (EIA) regulation of 1997 gives guidance and schedules the various project types and the EIA study to undertaken. It further gives provision on post EIA approval management of projects and guidelines for developing Environmental Management Plans (EMP's)
Environmental Management Act, 2011.	An Act to continue the existence of the Environmental Council and re-name it as the Zambia Environmental Management Agency; provide for integrated environmental management and the protection and conservation of the environment and the sustainable management and use of natural resources; provide for the preparation of the State of the Environment Report, environmental management strategies and other plans for environmental management and sustainable development; provide for the conduct of strategic environmental assessments of proposed policies, plans and programmes likely to have an impact on environmental management; provide for the prevention and control of pollution and environmental	The Displaced Persons and Border Communities Project is likely to involve the construction and rehabilitation of infrastructure and small livelihood activities, including agriculture, loss of vegetation and the cutting down of trees to facilitate road widening and farming activities, increased firewood demand for cooking, increased pressure on both surface and ground water due to abstraction of water from boreholes and rivers, increased incidence of soil erosion due to loss of vegetation cover and the loss of habitat due to changes in land use. These activities are likely to impact on the environment requiring that compliance with the Environmental Management Act, 2011.

	<p>degradation; provide for public participation in environmental decision making and access to environmental information; establish the Environment Fund; provide for environmental audit and monitoring; facilitate the implementation of international environmental agreements and conventions to which Zambia is a party; repeal and replace the Environmental Protection and Pollution Control Act, 1990; and provide for matters connected with, or incidental to, the foregoing.</p>	
Fisheries Act, 2011	<p>An Act to provide 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, utilisation 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; repeal and replace the Fisheries Act, 1974; and provide for matters connected with, or incidental to, the foregoing.</p>	<p>The presence of rivers and other water bodies in the districts and around the relocation areas will require that the provision of the Fisheries Act of 2011 are taken into consideration. The harvesting of any fish will have to be done in a sustainable manner without impacting the delicate aquatic ecosystem.</p>
Forests Act, 2015	<p>An Act to provide for the establishment and declaration of National Forests, Local Forests, joint forest management areas, botanical reserves, private forests and community forests; provide for the participation of local communities, local authorities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management; provide for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity; establish the Forest Development Fund; provide for the implementation of the</p>	<p>The relocation areas in both Mayukwayukwa and Meheba have relatively high forest cover. The proposed activities during the relocation of former refugees is likely to include the following activities namely; farming, widening of road, collection of firewood for cooking and construction. These are likely to have an impact on the forest resources in the area.</p>

	<p>United Nations Framework Convention on Climate Change, Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance, especially as Water Fowl Habitat, the Convention on Biological Diversity, the Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa and any other relevant international agreement to which Zambia is a party; repeal and replace the Forests Act, 1999; and provide for matters connected with, or incidental to, the foregoing.</p>	
Human Rights Commission Act, 1996	<p>An Act to provide for the functions and powers of the Human Rights Commission; to provide for its composition and to provide for matters connected with or incidental to the foregoing.</p>	<p>The human rights of residents in the new relocation will be protected and they will have the right to seek legal protection or redress should their rights be infringed.</p>
Immigration and Deportation Act, 2010	<p>An Act to consolidate the law relating to immigration; provide for the appointment of a Director-General of Immigration and other immigration officers and provide for their powers and functions; promote a human rights based approach and culture in respect of immigration controls; regulate the entry, exit and remaining within Zambia of immigrants and visitors; provide for prohibited immigrants and other specified persons and their deportation from Zambia; provide for, and regulate, immigration consultants; create an environment of cooperation with other public institutions and promote an integration of functions and harmonisation of operations among public institutions controlling borders and activities at ports of entry; repeal and replace the Immigration and</p>	<p>The integration of former refugees at Mayukwayukwa and Meheba will involve giving them legal status to stay in Zambia permanently. This will give them protection from deportation and access to services provided by the Zambian Government.</p>

	Deportation Act, 1965; and provide for matters connected with, or incidental to, the foregoing.	
Lands Act, 1964	An Act to provide for the continuation of leaseholds and leasehold tenure; to provide for the continued vesting of land in the President and alienation of land by the President; to provide for the statutory recognition and continuation of customary tenure; to provide for the conversion of customary tenure into leasehold tenure; to establish a Land Development Fund and a Lands Tribunal; to repeal the Land (Conversion of Titles) Act; to repeal the Zambia (State Lands and Reserves) Orders, 1928 to 1964, the Zambia (Trust Land) Orders, 1947 to 1964, the Zambia (Gwembe District) Orders, 1959 to 1964, and the Western Province (Land and Miscellaneous Provisions) Act, 1970; and to provide for matters connected with or incidental to the foregoing.	The land tenure for the area earmarked for relocation is under the state. The area will be subdivided into small plots per household and placed on title. The tile will bear the names of the estate owner. The provisions in the land act will guide this process to ensure equity in land allocation.
National Heritage Conservation Commission Act, 1989	An Act to repeal and replace the Natural and Historical Monuments and Relics Act; to establish the National Heritage Conservation Commission; to define the functions and powers of the Commission; to provide for the conservation of ancient, cultural and natural heritage, relics and other objects of aesthetic, historical, prehistorical, archaeological or scientific interest; to provide for the regulation of archaeological excavations and export of relics; and to provide for matters connected with or incidental to the foregoing.	Possible sub-projects under the Displaced Persons and Border Communities Project can include activities such as clearing of vegetation to pave way for farming, the widening of roads and construction activities may result in finds where artefacts of cultural or archeological significance will be unearthed, though this is not expected since the areas have been inhabited for a significant length of time. The National Heritage and Conservation Commission will guide on how such sensitive findings should be handled.
Public Health Act, 1995	An Act to provide for the prevention and suppression of diseases and generally to regulate all matters of public health in Zambia.	The act seeks to ensure the priority of the health of all beneficiaries of the project

Refugees (Control) Act, 1970	An Act to make provision for the control of refugees; and to provide for matters incidental thereto.	The project will involve the relocation and integration of former refugees. The act will help define who is a refugee or not. It will further help define possible household inclusion on the project.
Roads and Road Traffic Act, 1995	An Act to make provision for the care, maintenance and construction of roads in Zambia, for the control of motor traffic, for the licensing of drivers and motor vehicles, for the compulsory third party insurance of motor vehicles, for the licensing and control of public service vehicles and public services, and for other miscellaneous provisions relating to roads and motor traffic.	The project activities at Mayukwayukwa and Meheba will involve the widening of existing roads. This will result in increased traffic and accidents. The provisions of the act will help guide traffic flow and the safety of communities.
Urban and Regional Planning Act, 2015	An Act to provide for development, planning and administration principles, standards and requirements for urban and regional planning processes and systems; provide for a framework for administering and managing urban and regional planning; provide for a planning framework, guidelines, systems and processes for urban and regional planning; establish a democratic, accountable, transparent, participatory and inclusive process for urban and regional planning that allows for involvement of communities, private sector, interest groups and other stakeholders in the planning, implementation and operation of human settlement development; ensure functional efficiency and socio-economic integration by providing for integration of activities, uses and facilities; establish procedures for integrated urban and regional planning in a devolved system of governance so as to ensure multi-sector cooperation, coordination and involvement of different levels of ministries, provincial administration, local	The Displaced Persons and Border Communities Project focus on Kaoma and Solwezi district will fall in the jurisdiction of local municipalities with regard to planning. This will require that the proposed activities and developments are in line with urban and regional planning.

	<p>authorities, traditional leaders and other stakeholders in urban and regional planning; ensure sustainable urban and rural development by promoting environmental, social and economic sustainability in development initiatives and controls at all levels of urban and regional planning; ensure uniformity of law and policy with respect to urban and regional planning; repeal the Town and Country Planning Act, 1962, and the Housing (Statutory and Improvement Areas) Act, 1975; and provide for matters connected with, or incidental to, the foregoing.</p>	
Water Act, 1964	<p>An Act to consolidate and amend the law in respect of the ownership, control and use of water; and to provide for matters incidental thereto or connected therewith.</p>	<p>The proposed relocation areas are located in an area with rivers and streams in close proximity. The use of water resources should not deprive communities away from the relocation areas access to water.</p>
Water Resources Management Act, 2011	<p>An Act to establish the Water Resources Management Authority and define its functions and powers; provide for the management, development, conservation, protection and preservation of the water resource and its ecosystems; provide for the equitable, reasonable and sustainable utilisation 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-</p>	<p>The proposed relocation areas are located in an area with rivers and streams in close proximity. The provisions of the act will guide the use of water resources, ensuring they are equitable for the communities surrounding the relocation areas.</p>

	operation in, and equitable and sustainable utilisation 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; repeal and replace the Water Act, 1949; and provide for matters connected with, or incidental to, the foregoing.	
Zambia Wildlife Act, 2015	An Act to governing the affairs of the Zambia Wildlife Authority; establish the Department of National Parks and Wildlife in the Ministry responsible for tourism; provide for the establishment, control and management of National Parks, bird and wildlife sanctuaries and for the conservation and enhancement of wildlife eco-systems, biological diversity and objects of aesthetic, pre-historic, historical, geological, archeological and scientific interest in National Parks; provide for the promotion of opportunities for the equitable and sustainable use of the special qualities of public wildlife estates; provide for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education; provide for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhance the benefits of Game Management Areas to local communities and wildlife; involve local communities in the management of Game Management Areas; provide for the development and implementation of management plans; provide for the regulation of game ranching; provide for the licensing of hunting and control of the	The proposed relocation areas are located in provinces that host National Parks and Game Management Areas. The provisions of the act will ensure that interaction with these areas are based in the principles of wildlife conservation.

	<p>processing, sale, import and export of wild animals and trophies; provide for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Convention on Biological Diversity, the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora and other international instruments to which Zambia is party; repeal the Zambia Wildlife Act, 1998; and provide for matters connected with, or incidental to, the foregoing.</p>	
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4.4.1 National Policy on Environmental Policy (NPE), 2005

Zambia's National Environmental Policy is aimed at promotion of sustainable social and economic development through sound management of the environment and natural resources. The policy seeks, among other things, to: secure for all persons now and in the future an environment suitable for their health and well-being; promote efficient utilization and management of the country's natural resources and encourage, where appropriate long - term self-sufficiency in food, fuel wood and other energy requirements; facilitate the restoration, maintenance and enhancement of the ecosystems and ecological processes essential for the functioning of the biosphere and prudent use of renewable resources; integrate sustainable environment and natural resources management into the decentralized governance systems and ensure that the institutional framework for the management of the environment and natural resources supports environmental governance in local government authorities; enhance public education and awareness of various environmental issues and public participation in addressing them; and promote local community, NGO and private sector participation in environment and natural resource management.

The key principles applicable to the Displaced Persons and Border Communities Project are that:

- (i) every person has a right to a clean and healthy environment;
- (ii) every person has a duty to promote sustainable utilization and management of the environment and natural resources, including taking legal action against any person whose activities or omissions have or are likely to have adverse effects on the environment;
- (iii) women should effectively participate in policy, program and project design and implementation to enhance their role in natural resource use and management activities;
- (iv) there is need to use natural resources sustainably to support long-term food security and sustainable economic growth;
- (v) rational and secure tenure over land and resources is a fundamental requirement for sustainable natural resource management; and
- (vi) trade-offs between economic development and environmental degradation can be minimized through use of EIA instruments and environmental monitoring.

For the proposed Displaced Persons and Border Communities Project it is important to recognize the linkage between environment and development. It is also important to realize that the two are not mutually exclusive, but rather complementary. More important for the relocation of former refugees whose key objective is integration and provision of sustainable livelihoods, the project should integrate gender, children and other vulnerable groups' concerns in environmental planning at all levels, to ensure sustainable social and economic development.

4.4.3 National Water Policy, 1994

The National Water Policy of 1994 embraces modern principles of water resources management and endeavors to deal with the challenges of poverty reduction, all aspects of water including resource management, development, and service delivery conforming to the current global and regional trends and the requirements as reflected under the new Sustainable Development Goals that replace the Millennium Development Goals (MDGs). The overall policy goal is sustainable management and utilization of water resources in order to:

- (i) provide water of acceptable quality and of sufficient quantities,
- (ii) ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Zambian and;
- (iii) enhance the country's natural ecosystems.

One of its objectives is to promote public and private sector participation in water resources management, development, supply and conservation. The principles that will guide the management of water resources in and around the relocation area include the following:

1. management, protection and conservation of water resources to be undertaken in an integrated manner;
2. all people to have access to potable water and sanitation services to reduce incidences of water related diseases;
3. water resources shall be optimally, equitable and rationally allocated and regulated to ensure sustainable optimal economic returns and social enhancement;
4. water resources management will be based on the concept of decentralisation and will promote local participation with the catchment as the unit of water management;
5. promote the empowerment of user communities to own, manage and invest in water resources development;
6. pollution of water resources shall follow the "Polluter Pays" principle to ensure water user responsibility.

4.4.4 The National Forest Policy of Zambia, 1998

This policy aims at promoting sustainable contribution of national forests, woodlands and trees towards improvement of the quality of life in the country by conserving the resources for the benefit of the nation and to the satisfaction of diverse and changing needs of the Zambian population, particularly rural smallholder farmers and entrepreneurs. The policy prevents changes in land-use, which promote deforestation, constrain farm forestry or endanger the protection of forests with cultural or biodiversity or water catchment conservation values, and it also discourages excisions in gazetted forest, except in cases of environment friendly public utility, for which suitable inter-sectoral and local consultations will be established.

The policy further recognizes environmental impact assessment as an important tool for new projects as one way of promoting sustainable management of forest resources. The relocation and integration of former refugees will require undertaking site specific environmental and social impact of the project to ensure that adverse impacts are avoided, minimized or mitigated.

4.4.5 Additional relevant legislation

Additional legislation relevant which may be of relevance for components of the project, will be included as it becomes relevant in implementation:

- i. Agricultural Lands Act , December 23, 1960
- ii. Decentralization Act, 2013
- iii. Lands Acquisition Act Chapter 189 of the Laws of Zambia, February 10, 1970

- iv. Local Government Act Chapter 281 of the Laws of Zambia , September 16, 1991
- v. National Agricultural Policy, 2004
- vi. National Gender Policy, 2014
- vii. Public Roads Act, 2002
- viii. Town & Country Planning Act Chapter 283 of the laws of Zambia, November 16, 1962

4.5 Complementarity between Zambian Legislation and World Bank Safeguard Policies

A comparison between Zambian legislation and the operational safeguard policies the World Bank reveals no significant differences or gaps. There are more similarities than there are differences.

The two sets of policies and legislation recognize the importance of environmental and social benchmarks in order to mainstream environmental and social issues in development project, and will play a complementary role in the project.

Table 5: World Bank policies and Zambian Legislation

	WB Safeguard Policies	Zambian Legislation
Environmental	4.01 Environmental Assessment (1999) 4.04 Natural Habitats (2001) 4.36 Forests (2002) 4.09 Pest Management (1998) 4.37 Safety of Dams (2001)	Disaster Management Act, 2010 Environmental Impact Assessment Regulations, 1997 Environmental Management Act, 2011. Fisheries Act, 2011 Forests Act, 2015 National Heritage Conservation Commission Act, 1989 National Policy on Environmental Policy, 2005 National Water Policy, 1994 The National Forest Policy of Zambia, 1998 Roads and Road Traffic Act, 1995 Urban and Regional Planning Act, 2015 Water Act, 1964 Water Resources Management Act, 2011 Zambia Wildlife Act, 2015
Social	4.11 Physical Cultural Resources (2006) 4.12 Involuntary Resettlement (2001) 4.10 Indigenous Peoples (2005)	Employment Act, 1997 Lands Act, 1964 Public Health Act, 1995

Legal	7.50 International Waterways (2001) 7.60 Disputed Areas (2001)	Citizenship of Zambia Act, 1977 Human Rights Commission Act, 1996 Immigration and Deportation Act, 2010 Refugees (Control) Act, 1970
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Source: Adapted from World Bank (<http://web.worldbank.org>)

There is a need to streamline and harmonize the various pieces of legislation. Currently, the EMA is probably the closest to overarching legislation for environmental planning and protection. This would require the amendment of the other sectoral acts recognizing the EMA as the main legislation. This is achievable because there is coherence and harmony at the broader national level (Vision 2030 and the Sixth National Development Plan).

CHAPTER 5: INDICATIVE LISTING, POTENTIAL IMPACTS, ADAPTATION AND MITIGATION MEASURES OF SUB-PROJECTS

5.1 Context

The project involves the following type of sub-grants, as outlined in chapter 1:

- **Sub-component 1 (a): District Level Connective Infrastructures Sub-Grants**
This component focuses on infrastructures designed to connect the relocation areas with the surrounding District.
- **Sub-component 1 (b): Socio-Economic Investment Sub-Grants**
This component will fund the selected socio-economic investments (sub-grants) in the two Districts of intervention, with a focus on the relocation areas
The sub-grants will be demand driven and include:
 - (i) *District-level grants*
 - (ii) *Ward-level grants*
 - (iii) *Zone-level grants*

All types of sub-grants are included in the indicative listing of impacts and mitigation mechanisms.

Community demand-driven sub-projects and participatory planned district projects are the primary focus of the planned sub-projects. Through community demand driven (CDD), the nature of planned projects and sub-projects may lead to some degree of both environmental and social impacts depending on scale. It is in this context that the potential environmental and social impacts are assessed in this chapter. The identification of sub-projects will be undertaken by the communities, wards, and districts through a participatory planning process. The listing of potential impacts and mitigation measures for sub-project is therefore based on the following:

1. Experiences from relevant on-going projects in the country in particular the Zambia: Strengthening Climate Resilience Project which is still under implementation;
2. Preferred potential sub-projects expressed by host communities in previous consultative processes;
3. Identification of projects prototypes from relevant literature review of strategic documents of the Government of Zambia and the UNHCR; and
4. Proposed scope of intervention and priorities in the strategic framework for the local integration of former refugees³

³ Strategic Framework for the Local Integration of Former Refugees in Zambia, GRZ 2014

The sub-project proto-type lists provide the basis for the analysis of potential impacts which considers general description of potential environmental social, economic and cultural impacts of the projects and sub-projects likely to be proposed by the beneficiary communities.

5.2 Identification of Potential Sub-projects

Based on the sources listed above, an indicative list of possible sub-projects is presented in this section. During the development of the joint UN-World Bank report on local integration multi-stakeholder workshops and consultations with refugee representatives and host communities highlighted a set of socio-economic priorities that has informed the long-list of potential projects. Please see annex 1 and 2 for details on the local integration consultations and workshops. The project Zambia: Strengthening Climate Resilience Project employed extensive participatory processes to develop ideas for community projects based on mappings of vulnerability and climate risk Please see annex 3 and 4 for details on these projects.

The initial list of possible sub-projects draws from all of these sources, and is summarized in the table below serving as a guiding framework while actual sub-projects will be developed through participatory processes on the ground.

Connective infrastructure, initial consultations and suggested larger infrastructure are listed including maps in Annex 1. This is subject to a participatory process, but indicates initial types of projects expected.

Table 6: List of potential Sub-projects

INDICATIVE LIST OF POSSIBLE ACTIVITIES ELIGIBLE UNDER THE DISPLACED PERSONS AND BORDER COMMUNITIES PROJECT	
Connective infrastructure (Sub-component 1 a)	Construction/rehabilitation of roads
	Construction/rehabilitation of bridges
	Connection to electricity grid
	Provision of solar panels
Socio-economic infrastructure (Sub-component 1 b)	WARD AND DISTRICT LEVEL
	Construction/rehabilitation of school
	Construction/rehabilitation of clinic
	Construction/rehabilitation of water and sanitation facilities at clinic/ school
	Installation of solar panels for social service infrastructures
	Construction of vocational training centers
	ZONE LEVEL
	Support to community school (solar panels, rehabilitation/construction, provision of books)
	Construction/ rehabilitation of community hall
	Establishment of community level waste management, e.g. composting and recycling schemes
	WARD AND DISTRICT LEVEL

Socio-economic infrastructure (Sub-component 1 b)	Construction/rehabilitation of market
	Construction of city center to attract private services (bank, postal services)
	Construction/rehabilitation of town center commercial building
	Economic opportunities
	Construction/rehabilitation of training center
	Facilitation of links to micro-finance institutions
	Construction/rehabilitation of wells and boreholes
	Construction/rehabilitation of irrigation systems
	ZONE LEVEL
	Construction/rehabilitation of mill shelter
Establishment of out-grower schemes	
Livelihoods (Sub-component 2)	Training, provision of equipment and input for sustainable and/or climate smart agriculture training
	Training, provision of equipment and input for climate-smart livestock production.
	Provision of funds and materials to participate in vocational training
	Development of saving circles
	Equipment and input provision for aquaculture production
	Equipment and input provision for commercialization of non-timber products, e.g. honey
	Commercialization of small-scale production, e.g. creation of bulking center

As the sub-projects are to be funded under the two districts, it is imperative that consultations with the target beneficiaries in the respective project areas should be held to validate these potential areas of support.

5.3 NGO Stakeholders Relevant for Project Design and Implementation

NGOs have over time been involved in the promotion of community livelihoods as part of their aim to reduce poverty. Several types of NGOs are present in Kaoma and Solwezi, from grassroots Community Based Organizations (CBOs), NGOs and INGOs, with varying degrees of closeness to the communities. NGOs working in the areas were part of the multi stakeholder consultations, see annex 2, and additionally interviews were conducted as part of a mapping activity of NGOs in the areas discussing strategies for engagement with the communities, NGO’s existing capacities, and activities targeting vulnerable sub-groups.

The projects undertaken by NGOs which are relevant to the Displaced Persons and Border Communities Project: (i) UNHCR partners working in the relocation area (ii) livelihood interventions in the relocation area and host communities (iii) participatory processes and social cohesion activities.

Relevant partners and projects include:

Current partners of UNHCR in relocation areas:

- Caritas Czech providing livelihood support through skills and entrepreneurship trainings
- Concern World Wide providing extensive interventions in livelihood support and conservation agriculture
- Habitat for Humanity providing shelter
- International Development Enterprises (IDE) supporting small holder farmers and developing agricultural value chains
- World Vision constructing socio-economic infrastructure in the relocation areas and host communities

Livelihoods organizations working with local interventions and national knowledge development

- Zambian National Farmers Union (ZNFU) providing a strong farmers network and tailored support
- Servizio Volontario Internazionale (SVI) providing extensive interventions in livelihood support and conservation agriculture in the host communities around Meheba
- Micro-finance institutions, where several different actors are present in Kaoma and Solwezi city.

Organizations with a track record in participatory methods and community livelihoods support in addition to those listed above

- ActionAid working through partners, including Keepers, on the ground in communities, including in Western Province, with a strong track record of participatory processes
- Young Women's Christian Association (YWCA) with a strong ground presence working through extensive local chapters with a strong gender analysis and participatory methods
- Caritas using local presence to work on livelihoods from a participatory stand point

Network organizations with strong community presence

- Non-Governmental Organizations Coordinating Council (NGOCC), coordinating, distributing funding and capacity building women's CBOs
- Civil Society for Poverty Reduction (CSPR) working through local CBOs on an array of poverty reduction methods, including livelihoods
- Zambia Federation for the Disabled (ZAFOD) with chapters across the country among other things focusing on developing livelihoods for people living with disabilities
- Jesuit Centre for Theological Reflection (JCTR) working with the extremely poor

In each location there is a range of local community based organizations (CBOs), currently serving the community members. There is also a strong presence of cooperatives. The CBOs also work as implementing partners for governmental agencies and NGOs aiming to reach community members, and will be important implementing partners during the community drive development (CDD)

interventions proposed as part of the project design, in which a deeper mapping of the relevant CBOs will be undertaken.

5.4 Environmental impacts

The sub-projects, which will fall both under the livelihoods and social cohesion component, are expected to generate mainly positive impacts. The potential environmental impacts and mitigation measures are identified in the following tables.

5.4.1 Positive Impacts and Enhancement Measures

The essence of the Displaced Persons and Border Communities Project is to capitalize on the positive aspects of the various projects and sub-project components. These positive landmarks of the projects are aimed at alleviating many stresses arising from impacts of poverty and lack of access to assets to create sustainable livelihoods. Notably, from cost-benefit-analysis, infrastructure upgrading, increased access to social services through road rehabilitation, support to water supply and sanitation, among others, Displaced Persons and Border Communities Project will improve the social and economic status of the people in the targeted districts at minimal environmental damage. Table 7 below highlights the environmental positive impacts and their enhancement measures.

5.4.2. Induced Negative Impacts and Mitigation Measures

The project will contribute to connecting isolated areas to the larger district, and will support the provision of economic opportunities and social services in target areas. This is likely to make the project target areas more attractive, and to lead to increased populations moving to the target areas. As a result, induced impacts of the project could include: (i) increased pressure on land, and (ii) increased pressure on water resources.

This will be mitigated through the project activities and design itself that will include: (i) support to agriculture activities, to ensure target groups in the areas of project intervention, in particular the most vulnerable groups and persons, have access to food and income, despite increased pressure on land, (ii) support to provision of water, to relieve pressure on existing sources of water, by adding water supply, in particular through the provision of additional boreholes.

5.4.3 Potential Negative Impacts and Mitigation Measures

Some of the notable environmental impacts from the analysis of the potential sub-projects are likely impact on soils, water resources, and vegetation. The impacts might affect biodiversity, increase rate of soils erosion and fertility, water quality and deforestation. These negative impacts have been identified, assessed and mitigation measures suggested. Table 6 presents an overview of the environmental impacts, mitigation measures and the responsible agencies.

The activities expected to have the largest impact are the connective infrastructures (component 1a), potentially including main road rehabilitation/construction, small bridge rehabilitation, and extension of electrical grid, along existing road (see baseline in chapter 3.7.3 and Annex 1). The impacts of these connective infrastructure appear moderate, based on the following:

- *Small bridge rehabilitation.* While it is not confirmed yet as a sub-project under the project, a bridge rehabilitation sub-project in Meheba, was mentioned during project preparation consultations. This sub-project, if selected through the Community Demand Driven approach, would include raising a bridge that currently floods and building a causeway. In this case, any environmental/hydrological impacts would have occurred already, and the reconstruction works would not be expected to aggravate them. The hydrological impacts may be reduced by removing the remains of the old bridge from the river bed.
- *Main roads.* Many of the roads, pre-identified during preliminary consultations, would be rehabilitation, hence would be improved and possibly widened. Their basic construction principle, gravel roads on a slightly raised earth platform with drainage ditches on both sides, would remain the same. They would remain low volume roads, for comparatively low speeds, and are not expected to create major issues in terms of traffic/pedestrian safety, habitat fragmentation, or wildlife roads kills.
- *Power line extension.* Finally, preliminary consultations indicated that there could be requests for sub-projects supporting the extension of the power grid, alongside existing roads. The power lines are fairly low voltage, with simple poles and low strung lines. Impacts on bird life are not anticipated to be serious.

Mitigation mechanisms for all sub—projects (more details on all types of sub-projects under the project below) these issues must be addressed and detailed in the ESMPs, and would include materials management, restoration of stable gradients and vegetation cover, speed control on main access road, removal of old bridge from river bed, bird markers on power lines, especially in the vicinity of e.g. wetlands, rivers or dambos, and general good housekeeping, emissions control, waste management, spill and pollution prevention etc. during construction works.

The table below outlines possible negative impacts from sub-projects, focusing on higher impact project prototypes.

Table 7: Potential Environmental Impacts of Sub-Projects and Mitigation Measures

Sub-projects should comply with the IFC Environmental, Health, and Safety Guidelines, available online, which also apply to World Bank projects.⁴

For all construction projects the development and implementation of mitigation mechanisms in the form of an Environmental Management Plan should be included in the BoQ (bill of quantities) and the implementation price by contracting bidders.

Annexes also provide tools for the design and monitoring of mitigation mechanisms: (i) Annex 6 provides examples of environmental and social monitoring plans for sub-projects, (ii) Annex 7 provides a resource sheet with detailed assessments of impacts and relevant mitigation measures, per type of

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http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+a+pproach/risk+management/ehsguidelines

sub-project, (iii) and Annex 8 provides similar information, specifically for sub projects relating to the agro industry, and finally, annex 15 provides guidelines and examples of Environmental and Social Management Plans.

	Project type	Impact	Mitigation mechanism	Responsible for implementation	
Construction	Construction/rehabilitation of roads	Air pollution (increased dust) and increased noise during construction/ rehabilitation of roads	Location of site (a) Location of site to minimize negative environmental impact has been done in collaboration with relevant planning authorities, and in consultation with surrounding communities (where possible siting of building in locations previously used for infrastructure) (b) Control settlement along improved roads with assistance of traditional and local authorities (c) Preference to employment of local workers	DPSC	
	Construction/rehabilitation of bridges				
	Connection to electricity grid				
	Construction/rehabilitation of school	Environmental degradation from extraction of road construction materials e.g. gravel from borrow-pits. Disruption of water flow /blocked drainage at culverts and bridges	List of mitigation mechanisms for construction projects with negative impacts in the following areas: (a) Independent ongoing infrastructure audit in compliance monitoring with design and environmental indicators	DPSC and traditional authorities Contractor	
	Construction/rehabilitation of clinic				
	Construction/rehabilitation of water and sanitation facilities at clinic/ school				
	Construction of vocational training centers	Influx of migrant workers	Notification and Worker Safety (a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (c) All legally required permits have been acquired for construction and/or rehabilitation (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' personal protective gear will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) (f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.	Contractor	
	Construction or rehabilitation of community hall				
	Construction/rehabilitation of market or town center commercial building				
	Construction/rehabilitation of wells and boreholes	Contamination through accidental spillage of lubricants and fuels	Air Quality (a) During excavation works dust control measures shall be employed, e.g. by spraying and moistening the ground (b) Demolition debris, excavated soil and aggregates shall be kept in controlled area and sprayed with water mist to reduce debris dust (c) During pneumatic, e.g. breaking of foundations, drilling foundations dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site (d) The surrounding environment (sidewalks, roads) shall be kept free of soil and debris to minimize dust (e) There will be no open burning of construction / waste material at the site	Contractor	
	Construction/rehabilitation of irrigation systems				
	Construction/rehabilitation of mill shelter				
	Commercialization of small-scale production, e.g. construction of bulking center	Increased pressure on natural resources (land, water, forests) as a result of influx of a. construction workers, and b. population due to voluntary settlement along the improved roads			
	Construction for connection to electric grid				
			Loss of natural vegetation near roads/important habitats		

	Direct or indirect hazards to public traffic and pedestrians by construction activities	(f) All machinery will comply with emission regulations, shall be well maintained and serviced and there will be no excessive idling of construction vehicles at sites	
	Poor location of sanitation facilities, aquaculture facilities, solid waste management facilities or other facilities may contaminate water sources	<p>Noise</p> <p>(a) Construction noise will be limited to restricted times agreed to in the permit</p> <p>(b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible</p> <p>Waste management</p> <p>(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities.</p> <p>(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.</p> <p>(c) Construction waste will be collected and disposed properly by licensed collectors</p> <p>(d) The records of waste disposal will be maintained as proof for proper management as designed.</p> <p>(e) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except if containing asbestos)</p> <p>Water Quality</p> <p>(a) Provision of fuel and water sources at the work camps to prevent stress to local communities due to cutting of firewood and collection of water</p> <p>(b) There will be no unregulated extraction of groundwater, nor uncontrolled discharge of process waters, cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers; the Contractor will obtain all necessary licenses and permits for water extraction and regulated discharge into the public wastewater system.</p> <p>(c) There will be proper storm water drainage systems installed and care taken not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes by construction activities</p> <p>(d) There will be procedures for prevention of and response to accidental spills of fuels, lubricants and other toxic or noxious substances</p> <p>(e) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies</p> <p>(f) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in canalization and nearby streams and rivers</p>	Contractor
			Contractor
			Contractor
			Contractor
		<p>Ecosystem protection</p> <p>(a) Re-vegetation with native species to protect susceptible soil surfaces.</p> <p>(b) Re-vegetation and replanting to compensate any loss of plant cover and tree felling.</p> <p>(c) Minimize loss of natural vegetation during construction.</p>	Contractor Communities

			<p>(d) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited.</p> <p>(e) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided</p> <p>(f) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences</p> <p>(g) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.</p> <p>Direct or indirect hazards to public traffic and pedestrians by construction activities</p> <p>(a) In compliance with national regulations the Contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to</p> <ul style="list-style-type: none"> ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement ▪ If required, active traffic management by trained and visible staff at the site for safe passage for the public ▪ Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction 	Contractor
Non-construction socio-economic infrastructure	Establishment of community level waste management, e.g. composting and recycling schemes	Contamination of water sources from poor location of community solid waste management facilities	<p>Promote household and community level solid waste management practices, e.g. recycling, composting</p> <p>Participatory planning for location of facilities in coordination with District Planner</p>	<p>PIU DPSC</p> <p>DPSC</p>
Livelihoods	Training and provision of input for sustainable and/or climate smart agriculture training	Increased pressure on land, due to increased demand	Capacity building for applying communities on conservation agriculture, community agricultural land management and agroforestry to minimize soil degradation, including composting	DPSC (Ministry of Agriculture representative) PIU
	Training and provision of input for diversification livestock production		Capacity building for applying communities in sustainable grazing, mixed farming approaches (crop and livestock	DPSC (Ministry of Agriculture

Establishment of out-grower schemes	Increased land clearing that may result in deforestation, land degradation and soil erosion	production), and mix different livestock species (goats, sheep, cattle, donkeys) to fully make use vegetation resources. Where feasible, consider reforestation.	representative, Ministry of Forestry representative) PIU
	Equipment and input provision for aquaculture production	Community based regulations for harvesting quotas of non-timer forest products Community managed sustainable harvesting of trees e.g. unconnected blocks. Tree planting of fast growing indigenous tree species. Establishment of tree nurseries including fruit-tree seedlings.	WDC with support from PIU and PIU contracted NGOs
	Equipment and input provision for commercialization of non-timber products, e.g. honey	Clearing of land to create grazing fields Intensives use of land may lead to unsustainable land use practices Increased use of pesticides and fertilizers Increased demand for water Contamination of water from livestock, pesticides or contaminated water from aquaculture production, sanitation or waste management facilities	Capacity building for applying communities of integrated pest management and only use herbicides/pesticides as a last resort particularly rivers, streams, canals and small dams. If unavoidable use pesticides/agro-chemicals with short residual period. In addition, as per IFC Environmental, Health, and Safety Guidelines, among other key elements include: Use of protective equipment, safe disposal of containers. ⁵ Capacity building for applying communities on good practices for water resources sharing and management reducing water conflicts. Promotion of crops that require less water. Rehabilitate boreholes/wells that provide water in all seasons. Installation of water harvesting and storage facilities Avoid location of construction of small water structures near or adjacent to protected areas or natural habitats. Effective soil erosion control measures for managing pastures and reduces contamination of water at livestock watering points Locate ponds that do not have other important land uses e.g. use existing depressions. Avoid siting points adjacent to areas with high biodiversity values. Construct ponds in a manner that ensures good drainage and erosion control, and plant vegetation on the edges and between ponds. Capacity building for applying communities on good aquaculture management, including proper management of feeding and potential medicine levels, should be promoted to ensure that there are no direct threats to the ecosystem and to the indigenous fish species.

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Having identified the potential environmental impacts, it is also equally important to assess the extent of the direct and indirect impacts. The table below outlines possible negative social impacts from sub-projects, focusing on higher impact project prototypes, i.e. not including solely category C projects (see table 9).

5.5 Social impacts

Issues related to relocation and compensation that may arise as a direct consequence of the sub-projects are dealt with separately in the Resettlement Policy Framework.

5.5.1 Assessment of Social Impacts and Identification of Mitigation Measures

Interventions under the project are designed to improve the lives of people by reducing their vulnerability and contributing to social cohesion between refugee and host communities and long term sustainable livelihoods. Community Demand Driven projects are generally perceived as having less negative social impacts than externally initiated projects. This is not always true and as such the analysis and assessment of the social impacts of community-demand-driven sub-projects must be just as systematic and rigorous.

In addition, general potential negative social impacts of the project could include tensions and conflicts among former refugees and Zambians in the host communities, as well tensions between eligible and non-eligible former refugees. In addition, potential empowerment of women through project support, could lead to household conflict and potential exposure to SGBV. Increased interaction with construction workers, may increase the risk of sexual exploitation, and overall lead to increased sexual encounters between contractors and local communities including exposure to HIV/AIDS.

The table below presents a summary of the social impacts and mitigation or enhancement measures that are relevant to the interventions under the project. The description of the ratings of the social impacts, based on consultations and our interaction with the communities in selected districts is in annex 6.

Table 8: Potential Social Impacts of Sub-Projects and Mitigation Measures

	Project type	Impact	Mitigation mechanism	Responsible for implementation
Construction	Construction/rehabilitation of roads	Involuntary resettlement due to land needs	Acquisition of land (a) Land acquisition should be avoided as a fundamental principle (b) For cases where land acquisition is inevitable, WB OP/BP 4.12 has been triggered, and the RPF will be implemented and a RAP prepared (c) It will be ensured that voluntary donations of land for CDD projects are not forced, and the donation will be documented in writing with witnesses (d) In cases of land acquisition the Bank's Task Team Leader shall be immediately notified.	Monitoring by PIU
	Construction/rehabilitation of bridges			Increased interaction with construction workers, may lead to increased sexual encounters
	Connection to electricity grid			
	Construction/rehabilitation of school			
	Construction/rehabilitation of clinic			
	Construction/rehabilitation of water and			

sanitation facilities at clinic/ school	<p>between contractors and local communities including exposure to HIV/AIDS and risk of sexual exploitation, and sexual and gender based violence</p> <p>Removal of natural vegetation near roads and borrow pits may deny communities access to NTFPs</p> <p>Increased incidence of malaria and other water borne diseases due to unfilled borrow pits/quarries</p> <p>Increased traffic accidents and deaths</p>	<p>Sexual exploitation and HIV exposure 3rd party monitoring (e.g. community monitoring committees, district and ward level monitoring, monitoring of contractor through infrastructure audits)</p> <p>Grievance redress mechanism embedded in CDD process at all levels of project design</p> <p>Community peer education and support groups facilitated by NGO facilitators as part of the sub-project CDD process</p> <p>Contractual obligations to monitor and prevent sexual exploitation</p> <p>Health hazards Formulate and implement measures to manage public health aimed at preventing mosquito and waterborne diseases</p> <p>Direct or indirect hazards to public traffic and pedestrians from construction activities In compliance with national regulations the Contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement If required, active traffic management by trained and visible staff at the site for safe passage for the public Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction</p>	<p>PIU, DPSC, WDC, communities</p>
Construction of vocational training centers			PIU
Construction or rehabilitation of community hall			PIU
Construction/rehabilitation of market or town center commercial building			Contractor
Construction/rehabilitation of wells and boreholes			DPSC (Ministry of Health representative)
Construction/rehabilitation of irrigation systems			
Construction/rehabilitation of mill shelter			
Commercialization of small-scale production, e.g. construction of bulking center			
Construction for connection to electric grid			
			Contractor

Non-construction socio-economic infrastructure	Establishment of community level waste management, e.g. composting and recycling schemes	Increased health risk from contaminated water sources from poor location of community solid waste management facilities	Participatory planning for location of facilities in coordination with District Planner	PIU DPSC
Livelihoods	Training and provision of input for sustainable and/or climate smart agriculture training	Increased social conflicts due to: – unequal access to new social services (e.g. energy, solid waste management, non-timber forest product, water, land) - poor locations of infrastructure disrupts access to services - empowerment of women due to increased incomes - difficulties in integration between former refugees and Zambians	<p>Conflicts relevant to the scope of the project Communications strategy with wide-spread sensitization of project’s eligibility criteria as well as local integration</p> <p>Inclusive CDD process representing all key stakeholders</p> <p>Social cohesion and conflict mitigation sensitization Grievance mechanisms embedded at all level of project design, including with traditional authorities</p> <p>Training of planning authorities on land, crop and livestock management procedures</p> <p>Health Formulate and implement measures to manage public health mechanisms aimed at preventing mosquito and waterborne diseases</p>	<p>PIU</p> <p>Included in project design under component 1.b Responsible: PIU</p> <p>Included in project design under component 3 Responsible: PIU</p> <p>DPSC and PIU with NGOs</p> <p>DPSC (Ministry of Health)</p>
	Training and provision of input for diversification livestock production			
	Establishment of out-grower schemes			

CHAPTER 6: CLASSIFICATION OF SUB-PROJECT PROTOTYPES

The sub-project prototypes that have been identified in this ESMF are drawn from stakeholders and consultations as part of the WB-UN Report on Local Integrations, literature review and lessons from the Zambia: Strengthening Climate Resilience Project and other similar projects in the country. As such the sub-projects will depend on the CDD process.

6.1 World Bank Classification

All projects proposed for Bank financing are screened for potential adverse environmental and social impacts. The policy is triggered if a project is likely to have adverse environmental risks and impacts in its area of influence, and beyond. Based on OP 4.01, the Bank classifies a proposed project into one of four categories, depending on type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts:

Category A: A proposed project is classified as *Category A* if it is likely to have significant adverse environmental and social impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. Environmental Assessment for a *Category A* project examines the project's potential negative and positive environmental and social impacts, compares them with those of feasible alternatives (including the "without project" scenario), and recommends any measures needed to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental and social performance. For *Category A* projects, the borrower is responsible for preparing a report, normally an Environmental Impact Assessment (or a suitably comprehensive regional or sectoral EA).

Category B: A *Category B* project has potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - which are less adverse than those of *Category A* projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for *Category A* projects. The scope of EA for a *Category B* project may vary from project to project, but it is narrower than that of *Category A* assessment. Like *Category A*, a *Category B* environmental assessment examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. The findings and results of EA for *Category B* projects are described in the project documentation (Project Appraisal Document and Project Information Document).

Category C: A *Category C* project is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required.

Category FI: A proposed project is classified as *Category FI* if it involves investment of Bank funds through a financial intermediary such as local micro-finance entities, in sub-projects that may result in adverse environmental impacts.

According to the sub-project prototypes outlined in this ESMF, categories that may apply to be funded sub-projects under the Zambia Displaced Persons and Border Communities Project are likely to be classified as Category B and Category C projects (see table 9 for the list of proto-type projects) and require either an environmental and social assessment and simple environmental and social screening respectively. Considering the nature of district projects and sub-project prototypes expected for support under the Displaced Persons and Border Communities Project Category A sub-projects are not expected. In case sub-projects are identified as Category A, they are not eligible for funds under the project.

6.2 Environmental Management Act (2011) Classification

The Environmental Management Act (2011) of the Laws of Zambia read together with Statutory Instrument No. 28 of 1997 provides for Environmental Impact Assessment regulations that classify projects into either the **First Schedule** or **Second Schedule** depending on the size, nature and anticipated environmental consequences of a project or sub-project. The EIA Regulations provide lists of projects or sub-projects proto-types which fall under the two categories.

6.2.1 First Schedule: These are projects or sub-projects with minimal negative impacts on the environment and may require preparation of project briefs (Annex 17) to determine the safeguards category. Examples would include: hospitals, clinics and health centers, areas of human settlements, small scale projects such as beekeeping, crafts production, small scale fish-farming, raising of climate resilient livestock, climate-proofing of community-level infrastructure e.g. roads, embankments, etc.

6.2.2 Second Schedule: These are projects that require an extensive evaluation of activities likely to have significant negative impacts on the environment and require undertaking a detailed Environmental Impact Assessment. Examples broadly include: urban development, transportation, dams, rivers and water resources, mining, forestry, agriculture, processing and manufacturing, waste disposal, electrical infrastructure and nature conservation areas.

Zambia's EIA Regulation (SI No. 28 of 1997) is consistent with the WB categorization of projects or sub-projects such as those which will be funded under the Project.

Where it is clear that project activities will fall under the Second Schedule of the EIA regulations, an EIA needs to be carried out using the outlined process and guidelines. However, it is unlikely that the sub-projects planned for implementation under the Displaced Persons and Border Communities Project will be classified under Schedule II due to the anticipated sub-project sizes and nature of activities. Any sub-project falling under World Bank Category A will become ineligible for funding, while ZEMA Schedule 2 would be possible, but would have to be upgraded to implementation at district, provincial or national level implementation, depending on national procedures including procurement.

The screening process described below will be used to determine the appropriate types of follow-up measures; depending on the nature, scope and significance of the expected environmental impacts from each sub-project activities.

6.3 Screening of Sub-Projects

The screening for environmental and social impacts correspond to the first three project categories under the World Bank project classification (categories A, B, C) and will to, the extent possible, correspond to the classification under the national EIA regulations (first and second schedules).

The CDD sub-projects under the Displaced Persons and Border Communities Project will be small (in size and investment value) and will be, in most cases, of a short duration. The connective infrastructure component can include larger sub-projects.

6.3.1 World Bank Category C/ZEMA Schedule 1 Sub-projects

It is anticipated that projects and sub-projects will fall under Category C or B (World Bank) or schedule 1 (ZEMA). According to EIA regulation these projects require preparation of an environmental project brief, if the category is unclear, and formal clearance by the national regulator.

Based on experience from Zambia: Strengthening Climate Resilience, early engagement of ZEMA is required on the nature and scale of sub-projects so that there is an understanding on the extent of compliance and clearance procedure for such small scale projects

6.3.2 World Bank Category B/ZEMA Schedule 2 Sub-projects

Under the Resilience and Social Cohesion, a few connective infrastructure sub-projects (component 1a) will be of a larger scale than socio-economic infrastructure sub-component (1b). The projects are identified and prioritized through a participatory consultative process, and could include main road rehabilitation, small bridge rehabilitation, or extension of power lines along existing road. As with all sub-projects, the screening process will identify the safeguards category. The connective infrastructure sub-projects are expected to be classified under category B (World Bank) and schedule 1 or 2 under ZEMA. Sub-projects that would fall under category A (World Bank) will be disqualified from funding from the project.

It is expected that connective infrastructures (main road rehabilitation/construction, small bridge rehabilitation, extension of power lines) would remain within category B, based on the infrastructure characteristics described in chapter 3, as well as the below described characteristics of the terrain: The future relocation site appears to lie in a fairly densely populated and intensely used corridor extending from Solwezi via Mutanda to Manyama, with the following key features:

- The relief is undulating, with shallow slopes and wide plains between ridges, a geologically very mature and stable landscape.
- The natural vegetation is a savannah type forest, with closed tree cover on ridges, and sparse trees and grass in dambo areas. In the prospective project area the natural vegetation has largely been replaced by agricultural land, leaving only small patches and galleries of forest, often along floodplains.
- The current refugee camp, and planned resettlement area both lie in an area which has evidently developed as settlement and agricultural area before. There is an access road from

the main road, a grid of local roads spaced about 1 km apart, covering an area of at least 10x20 km (= ca. 200 km²).

- This area is characterized by a complete conversion from natural land cover to agricultural land and human habitations.
- To the West of this area the land cover becomes rapidly more natural and undisturbed, albeit with some evidence of human activity.
- 10 km NE of the current refugee area a large copper mine is situated, which adds to the existing anthropogenic impacts in the area.
- The bridge at Mafwe is located about 30 km SSW of the planned resettlement area, where human activity is sparser, but evidenced by existing roads, agricultural activity and settlements. The bridge itself would be a relatively small span at an existing bridge location, as would be the required causeway over a floodplain close to the river.

Sub-projects under category B (World Bank) and schedule 2 under ZEMA are likely to have some degree of environmental and social impacts, however, these impacts are expected to be localized, time-bound and of less significance.

The expected level of impact is assessed as part of sub-project preparation. For any sub-projects where initial screening process underlines that there will be significant social and environmental impact, the Climate Change Secretariat will be responsible for conducting an ESIA. Where such projects will have to be undertaken, ESMPs will be required to be prepared by the Climate Change Secretariat, cleared by ZEMA, and implemented by the contractor.

6.3.3 World Bank Category A/ZEMA Schedule 2 Sub-projects

Sub-projects falling under category A/Schedule 2 are those that are likely to have significant and/or widespread and irreversible environmental and social impacts. Sub-projects of this magnitude are not anticipated under the Displaced Persons and Border Communities Project, a precautionary principle should be applied that there is possibility that a few sub-projects may fall into Category B/ or Schedule 2. If nevertheless activity that meets Cat A criteria, the Borrower should in principle exclude much sub-project, and seek guidance from the World Bank. Such sub-projects may include the anticipated construction/rehabilitation of roads and construction/rehabilitation of bridges. These will follow the procedures outlined below.

6.3.4 Screening process, tools and indicative safeguard categories for sub-projects

Sub-project screening for environmental and social impacts will be required for each individual sub-project to provide basis for ZEMA to make a decision on the safeguards category, determining if the sub-project would require a project brief (if the category is uncertain, see Annex 17 for the format.) an EIA (if the impact is high) or a no-objection decision (if the impact is low). The Climate Change Secretariat has a speedy process in place for sub-projects that follow proto-types projects that generally result in a no-objection from ZEMA

Overall the project involves two categories of sub-projects from a safeguards perspective: **small scale physical works** which clearly have limited adverse environmental and social impacts (World Bank Cat. “C”), and **larger scale physical work** (World Bank Cat. “B” or higher) which require detailed and specific assessment to identify location, duration and level of impact:

- For larger scale physical works, such as access/connection roads, transmission lines, bridge reconstruction, incl. causeways, moderate impacts would be expected. The potential pathways and receptors, magnitude, duration and tailored mitigation measures for these impacts are required to be assessed through a detailed and specific assessment. ESIA and resulting ESMPs are required to be contracted in advance, to be available during design of these infrastructure works in order to inform appropriate design and embedded safeguards (examples of such design elements could include sufficient culverts in causeways, proper road drainage, landscaping/stable gradients/vegetation conservation and restoration, alignment routing to avoid dambos/wetlands/remaining patches of forest/ physical cultural resources). The ESIA would highlight environmental and social features such as natural habitats, physical features, or socio-economic issues (existing land use/livelihoods) in the site location of the works, to inform the ESMP.
The safeguards category for these projects would be established by ZEMA, facilitated by the environmental and social safeguards responsible at the Climate Change Secretariat. These works and the corresponding safeguard measures are monitored by ZEMA and the PIU through routine and independent audits. The World Bank will review and clear the ESIA for larger infrastructure projects (World Bank Category “B”). The safeguards instruments produced for these larger infrastructure projects will also have to be consulted with the PAPs.
- Small scale physical works, such as construction of schools and clinics, rehabilitation/construction of internal roads, water supply systems and electricity distribution infrastructure have clearly limited (both in space and time) potentially adverse environmental and social impacts, that are of a standard nature, readily characterized and predictable, and manageable with generic shelf management plans. These projects will be managed through the application of a checklist ESMP (annex 6)

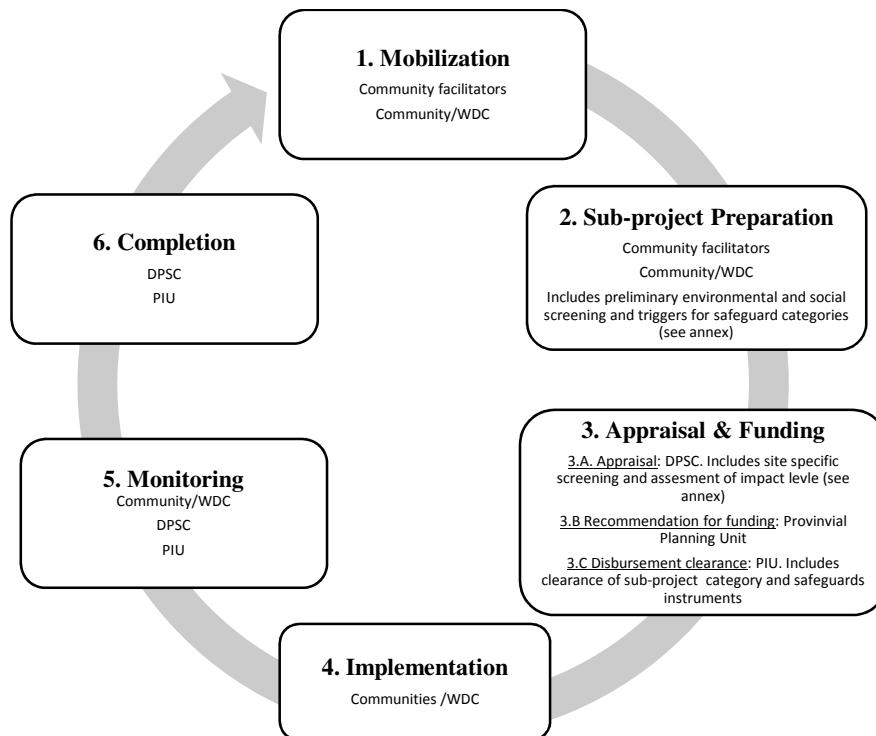
6.3.4.1 Screening process for socio-economic sub-projects (component 1b)

For socio-economic infrastructure sub-projects under component 1b, identified through a full-fledge CDD process, the management of safeguards will be embedded in the participatory identification of projects. The screening for environmental and social impacts is included in the process for submitting proposals for sub-projects. The environmental and social screening process (Annex 5, which includes triggers for determining the safeguards category) will be an integral part of the sub-project review and approval process of the grant applications received by the District Planning Sub-Committee.

The District Planning Sub-Committee has roughly 10-12 full time staff drawn from key institutions, working in close consultation with the Project Implementation Unit (PIU). At community level, environmental and social aspects are integrated in the sub-project identification and application preparation with facilitation by trained Participatory Rapid Appraisal Facilitators.

The sub-project implementation cycle and responsibilities follows these steps:

Figure 5: Responsibilities and safeguards in sub-project cycle



Legend

WDC: Ward Development Committee.
DPSC: District Planning Sub-Committee

- 1.) Participatory Rapid Appraisal facilitators undertake vulnerability and risk assessments in a community using various Participatory Rapid Appraisal tools to establish environmental and social welfare in a given community. The process leads into identification of interventions for addressing various environmental and socio-economic issues and highlights prevailing environmental conditions and indications of levels of vulnerability. A short list of interventions are prioritized through a participatory ranking process to select the most preferred activity to be packaged as a sub-project;
- 2.) Participatory Rapid Appraisal facilitators assist the community in preparing a sub-project application using a designed form. At application stage the facilitators assist the community to undertake a preliminary environmental and social screening of impacts associated with the identified sub-project. The information is filled in a preliminary environmental and social screening form and highlights how the sub-project may affect various environmental and social aspects and how they can be mitigated;
- 3.) The facilitators submit the community sub-project application form, including the information in the preliminary environmental and social screening form (annex 9), to the

District Planning Sub-Committee for desk appraisal in order to ascertain the feasibility. The District Planning Sub-Committee evaluates the application against eligibility criteria. At this stage the application is also appraised on environmental and social aspects through key questions:

- a) Is the proposal likely to have significant social and environmental impacts? (see annex 5 for the form used to evaluate this)
- b) Are the anticipated environmental and social impacts of the sub-project listed and described?
- c) Have these been adequately described and quantified?
- d) What (WB/ZEMA) assessment impact category has been allocated to the sub-project, and is it in line with the assessment complete (annex 5)?

In consultation with the environmental and social expert at the Climate Change Secretariat and based on the information from the preliminary environmental and social screening, the District Planning Sub-Committee will arrive at the following decisions:

- a) Exclude from funding sub-projects that are classified *Category A* (WB) & Schedule 2 (EMA) due to significant adverse environmental and social impacts that are sensitive, diverse, irreversible, unprecedented or widespread;
- b) Recommend preparation of a simple ESMP/RAP/PMP (depending on the impacts identified in the preliminary screening) for sub-projects classified *Category B* sub-project that are considered to have environmental and social impacts which are less adverse than those of *Category A* projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for *Category A* projects;
- c) Recommend for funding without ESMP requirements for sub-projects classified *Category C* project whose activities are likely to have no adverse environmental and social impacts. Beyond screening, no further EA action is required.

4.) A successful desk appraisal results in the forwarding of the application to field appraisal performed by the District Planning Sub-Committee and environmental and social factors are considered to verify information and provide on-site technical guidance to the community. The environmental and social screening at field appraisal is done in detail using a designed form. In addition to the information on the form, key questions for field appraisal of a community sub-project include

- a) Has the environmental and social screening sheet (annex 5) been applied to the sub-project?
- b) Is the screening sheet complete and has had inputs from qualified project safeguard specialist?
- c) Have the identified environmental and social impact mitigation measures been incorporated into the sub-project design?

Based on identified environmental and social impacts, a simple ESMP is prepared using a designed template to accompany the application. The simple ESMP (annex 6) outlines the project activities and associated impacts and possible mitigation measures and related costs where applicable. It also outlines a simple monitoring schedule with

assigned responsibilities at community level. Complete sub-project applications are forwarded to the Provincial Planning Unit to be considered for funding. Sub-projects approved at the provincial level are submitted to the Climate Change Secretariat and crossed checked for environmental and social safeguards completeness and consulted on with ZEMA for a decision.

Sub-project applications for funding endorsed by the Provincial Planning Sub-Committee would be submitted on a rolling basis to ZEMA by the Climate Change Secretariat (CCS) who will engage ZEMA at national level to seek a decision. An expedited process has been agreed on between Climate Change Secretariat and ZEMA on the modalities for decision-making to ensure small community sub-projects are not subjected through the statutory evaluation process. The Climate Change Secretariat has also engaged ZEMA for a desk officer to handle small community sub-projects on a rolling basis. In order to inform its decision on environmental and social settings of proposed sub-projects, ZEMA may be facilitated to conduct site visits for proposed sub-projects. A written decision from ZEMA on sub-project proposals may take the form of one of the following:

- a) Endorsement or no-objection;
- b) Endorsement with recommendations for addressing gaps; or
- c) Recommendation for preparation of an Environmental Project Brief. (see annex 17 for format)

It is understood that the assigning of potential sub-projects to the three decision categories described above is only indicative and not binding. It is the screening of the actual sub-projects and the assessment undertaken by ZEMA that will determine which decision is given to the sub-project.

Apart from the simple environmental and social screening, for which an example of a form is attached in annex 9, two other forms may be required. These are the site selection form, annex 10, and the field appraisal form annex 11.

The most stringent safeguards requirements from respectively World Bank and Zambian regulation, will be followed. It is noted, that ZEMA may recommend an EIA for a sub-project. Where a sub-project or projects requires an EIA, both ZEMA and World Bank procedures will be satisfied, including for public disclosure.

6.3.4.2 Indicative safeguard categories for sub-projects

Based on the assessments in this chapter, the table below presents the safeguard categories expected for sub-projects proto-types

Table 9: Indicative list of safeguard categories for sub-project prototypes

Category B can correspond to ZEMA schedule 1 or 2, while category C is expected to correspond to ZEMA schedule 1. Note however that categorization under World Bank OP 4.01 not only depends on the type of project, but also relates to the scale, location and severity of impacts.

Project type	Category B or B/C
Construction/rehabilitation of main roads	B
Small bridge rehabilitation	B
Extension of power line	B
Construction/rehabilitation of small roads	C/B
Construction/rehabilitation of school	C/B
Construction/rehabilitation of clinic	C/B
Construction/rehabilitation of water and sanitation facilities at clinic/ school	C/B
Construction of vocational training centers	B
Construction/rehabilitation of community hall	C/B
Construction/rehabilitation of market or town center commercial building	C/B
Construction/rehabilitation of wells and boreholes	C/B
Construction/rehabilitation of irrigation systems	C/B
Construction/rehabilitation of mill shelter	C/B
Commercialization of small-scale production, e.g. construction of bulking center	C/B
Construction for connection to electric grid	C/B
Establishment of community level waste management, e.g. composting and recycling schemes	C/B
Training, provision of equipment and input for sustainable and/or climate smart agriculture training	C/B
Training, provision of equipment and input for diversification livestock production	C/B
Construction of pond and facilities for aquaculture production	B
Construction of bulking center for commercialization of non-timber products, e.g. hone	B
Project type	Category C
Provision of funds and materials to participate in vocational training	C
Training and provision of input for out-grower schemes	C/B
Equipment and input provision for aquaculture production	C/B
Equipment and input provision for commercialization of non-timber products, e.g. honey	C
Development of saving circles	C
Establishment of out-grower schemes	C/B
Provision of solar panels	C

Support to community school (solar panels, provision of books)	C
Facilitation of links to micro-finance institutions	C

6.4.4 Environmental Impact Assessment

An EIA is required where a proposed project falls under the second schedule of the EIA regulations of The Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, 1997. Procedure will be conducted as per EIA regulations provided for in statutory instrument No. 28 of 1997. The Project implementation agency should engage ZEMA early in the stages of project identification to receive guidance and facilitate smooth clearance.

6.4.5 Public Consultation and Disclosure

According to Zambia's EIA regulations (SI No. 28 of 1997), public consultations are an integral component of the EIA requirements, and the Guidelines identify the following principal elements:

- Developers are required to conduct public consultations during the preparation of Project Briefs and EIAs.
- The Director General of the Environmental Management Agency may, on the advice of the Technical Committee on Environment (TCE), conduct his or her own public consultation to verify the works of a developer.
- Formal EIA documents are made available for public review and comments. Documents to which the public has access include Project Briefs, EIA terms of reference, draft and final EIA reports, and decisions of the Director General of the Environmental Management Agency regarding project approval. The Director General, on the advice of the TCE, will develop practices and procedures for making these documents available to the public.
- Decision Letter approving projects will be published by the developer and displayed for public inspection.
- Public consultations are critical in preparing an effective proposal for the implementation of the project activities. These consultations should identify key issues and determine how the concerns of all parties will be addressed in response to the terms of reference for the EIA, which might be carried out for construction and rehabilitation proposals.

The Zambian EIA regulations (1997) provide details concerning the public consultation methods. Such methods include information notices, brochures/fliers, interviews, questionnaires, community meetings and public hearings. In terms of Zambia's EIA process, public consultation should be undertaken during (i) the preparation of the EIA terms of reference; (ii) the carrying out of an EIA; (iii) Government review of an EIA report; and (iv) the preparation of environmental terms and conditions of approval.

For the Displaced Persons and Border Communities Project, the first step will be to hold public consultations with the local communities and all other interested/affected parties during the screening process. These consultations will be aimed at briefing the communities about the project activities,

how the activities will be carried out and what sectors of the environment are likely to be impacted. The public consultations will be done in a participatory manner to encourage the communities to contribute to the screening process.

During preparation of the Terms of Reference for an EIA, District Councils (or a consultant) will consult with ZEMA to ensure that the TORs are comprehensive enough to cover all the sectors of the environment and that they conform to the EIA procedures as outlined in the EIA Guidelines. ZEMA will also ensure that the social and health impacts of the project activities will be adequately covered in the EIA report.

In the course of preparing the EIA the consultant will conduct extensive public consultations to attract and capture comments from the stakeholders as well as the communities for incorporation in the EIA report. The stakeholders and communities, including institutions will be asked to contribute to the identification of impacts and to proposed mitigation measures for the negative impacts. They will also be asked to comment on how the positive impacts may be enhanced.

When reviewing the EIA report, the Technical Committee on Environment will ensure that the relevant stakeholders, including potentially affected persons, were adequately consulted with regard to the potential impacts of the proposed project activities. Consultation methods applicable to the Displaced Persons and Border Communities Project would include workshops, community meetings, public hearings or information notices which would be organized through the district and local authorities.

This ESMF will be subjected to public consultations involving the communities in the proposed project areas, Local Leaders, District Officials, and Provincial, National, farmers and key Government institutions for their validation. Copies of the ESMF will be made available to the public through the above channels of communication and in the same manner, EIA results would be communicated to the various stakeholders.

The dissemination of the ESMF is for information purposes, as the instrument is not a legal requirement under the EMA (2011) and the EIA (1997) regulations.

To meet the consultation and disclosure requirements of the World Bank, the implementing agency will issue a disclosure letter to inform the general public and key stakeholders of approval of relevant environmental assessment reports. This stage of disclosure also serves as Government's authorization to the World Bank to disclose such documents in its Info shop in Washington D.C. The steps towards disclosure of the safeguard documents have to be completed prior to appraisal of the Displaced Persons and Border Communities Project as required by the Bank's Disclosure Policy OP 17.50.

CHAPTER 7: MONITORING PLAN OUTLINE

Adherence to World Bank and Zambian environmental and social policies and legislation usually raises challenges during the implementation phase of most projects. Therefore, the importance of monitoring is critical to the successful implementation of projects and sub-projects under the Displaced Persons and Border Communities Project components.

The objectives of the environmental and social monitoring plan (ESMP) for the Displaced Persons and Border Communities Project and sub-projects are to:

- (i) Generate and provide policy makers, decision makers (at national and provincial level), implementers (at district and sub-district and community levels) investors⁶, financiers and controlling authorities with timely information on the progress being achieved. This monitoring information will enable implementers to make informed decisions regarding appropriate adjustments in the implementation of the sub-projects;
- (ii) Determine whether the goals and objectives of the mitigation measures Displaced Persons and Border Communities Project have been achieved. This assessment of performance compares the baseline environmental and social conditions with the actual conditions at the time of monitoring of the projects and sub-projects in order to assess the extent to which the original environmental and social conditions have been restored, improved or made worse;
- (iii) Ensure that all activities relating to the operation and maintenance are being carried out in a manner that protects the environmental and social conditions without compromising the health and social well-being of the beneficiaries and target communities; and
- (iv) Ensure, where required, that any changes to Displaced Persons and Border Communities Project ESMPs are made with necessary suggestions for additional training and institutional capacity building in order to improve the performance of the ESMP implementation.

Monitoring is a key component of the ESMP during project implementation. Monitoring should be undertaken during the Displaced Persons and Border Communities Project implementation phase to authenticate the effectiveness of impact management, including the extent to which mitigation measures are being successfully implemented. An ESMP should have the following components:

1. Compliance monitoring;
 2. Impact monitoring; and
-

⁶ Investors are mainly from the private sector while financiers are bilateral and multilateral donors and MDBs

3. Cumulative impact monitoring.

The aim of monitoring would be to:

1. Improve environmental and social management practices;
2. Check the efficiency and quality of the EA processes;
3. Establish the scientific reliability and credibility of the EA for the project; and
4. Provide the opportunity to report the results on safeguards and impacts and proposed implementation of mitigation measures.

7.1 Compliance Monitoring

This is to authenticate that the required mitigation measures, which are the environmental and social commitments agreed on by the implementing agency, districts and local implementing agencies are being adhered to. A monitoring framework will be developed based on agreed prototype sub-projects as they are specified in the positive list of projects. The Climate Change Secretariat will be responsible for undertaking compliance monitoring, with support from district planners and engineers.

7.2 Impact Monitoring

Monitoring of sub-projects impacts mitigation measures should be the duty of the Climate Change Secretariat and implementing agencies at the Provincial (PIU) and District level. The Environmental and Social Safeguards agreed in the contract specifications should be monitored to ensure that works are proceeding in accordance with the laid down mitigation measures. The Climate Change Secretariat and other implementing agencies should ensure that the project implementers submit reports on work progress and any challenges in observing the Environmental and Social Safeguards. The monitoring results should form a major part of the reports to be submitted to ZEMA, MoF.

7.3 Cumulative Impacts Monitoring

The impacts of the Displaced Persons and Border Communities Project on the environmental and social resources within the Project areas should be monitored with consideration to other developments which might be established. There should be collaboration between the climate change Secretariat and proponents of other development projects to compare Environmental and Social Safeguards guiding the individual projects implementation to ensure coordinated and comprehensive management of cumulative impacts.

There are two aspects of monitoring in the Displaced Persons and Border Communities Project. The first aspect takes into account the monitoring at ward and community level (project site) where the project is being implemented and; secondly, at the larger scale for all sub-projects at district and provincial level.

7.4 Monitoring Requirement, Environmental and Social Monitoring Plan

Environmental monitoring needs to be carried out during all phases including construction, operation and maintenance of sub-projects in order to measure the success of the mitigation measures implemented. Sub-project designs must include a monitoring framework, together with indicators. The monitoring requirements of the ESMF that take into consideration the environmental and social mitigations measures are:

- i. Mitigations measures outlined in the ESMP are fully implemented in consultation with all stakeholders involved at national, provincial, district, and ward and community levels;
- ii. Adherence to the policies and legal requirements as outlined in the World Bank, and national legal frameworks;
- iii. The local people's expectations and regulations are taken into account;
- iv. All the stakeholders and institutions involved in implementations of the sub-projects ought to be familiarized with the challenges of identification of impacts and mitigation measures prescribed for each sub-project or CDD.

An Environmental and Social Management Plan (ESMP) is required for sub-projects that have distinct mitigation measures such as physical works or management activities. The ESMP must be included in the sub-project application. The main elements of an ESMP are listed in Annex 14, and an example of an ESMP is provided.

7.5 Monitoring Indicators

The monitoring of CDD projects runs according to the following plan: the communities themselves include mitigation mechanisms in the application for a CDD project. The mitigation mechanisms are part of the appraisal, and the satisfactory fulfilment of the mitigation mechanisms is routinely monitored. The communities are subsequently trained by the Climate Change Secretariat in environmental and social management. The district officers of relevant line ministries from the District Planning Sub-Committee, including Water, Agriculture, Forestry, Fisheries, Environmental Resources, Community Development and the District physical planners have routine contact with the sub-projects and oversee the effectiveness of mitigation mechanisms monthly. Thirdly the PIU performs quarterly monitoring and a final audit at the end of the project cycle. All of this is supported by the environmental and social officers at the Climate Change Secretariat.

Monitoring indicators that show the environmental and social performance of the project, and in particular demonstrating that mitigation measures are working effectively are an important component of the ESMF. An example of the environmental and social monitoring plan (ESMP) has been outlined in Annex 6 Table 13 for prototype sub-projects and will form a framework for developing a comprehensive ESMP for CDD sub-projects agreed on with the communities. The ESMP will be required to contain information on:

1. Nature of project being implemented
2. Environmental and social impacts associated with the project

3. Mitigation or enhancement measures for addressing the identified impacts
4. Indicators for assessing progressing and effectiveness of mitigation or enhancement measures
5. Monitoring schedule outlining the timing and frequency of monitoring the indicators
6. Responsible office or organization to undertake the monitoring.

Selected indicators should be measured in units of, for example, time (i.e. duration), frequency (i.e. how often), area or volume (e.g. size of area land planted), length (e.g. length of road affected), quantity (e.g. number of farmers adopting conservation agriculture). Table in Annex A gives examples of specific indicators that could be used for the sub-projects.

The ESMPs will identify the following:

- Monitoring indicators to be measured for evaluating the performance of each mitigation measure
- Monitoring mechanisms and methodologies;
- Monitoring frequency;
- Monitoring locations;
- Monitoring budget.

The specific indicators for each sub-projects will be developed depending on the design of the sub-project. The larger infrastructure projects will specify environmental and social monitoring indicators, which will focus on compliance with design (e.g. transmission lines not being located close to wetlands, stability and quality of bridges, river not becoming narrower, roads having sufficient culverts to drain flooding etc.). All of these will be verified by the engineer/planners monitoring.

It is important to measure the overall success of Displaced Persons and Border Communities Project sub-project in terms of the planned mitigation measures and determining whether the desired environmental and social performance is being achieved.

The monitoring indicators on different levels of the overall Project are listed below:

Table 10: Monitoring Indicators

Monitoring Level	Monitoring Issue	Verifiable Indicators	Responsibility
ESMF Level	Adequate dissemination of ESMF and RPF to stakeholders	Record of consultations and meetings;	Ministries of Environment, Consultants, World Bank
	Capacity building and training programs	Workshop reports.	World Bank

Project Investment Level	Preparation of environmental and social impact assessment report	Independent consultants hired to prepare ESIA and/ RAP documents as required	Line Ministries, Consultants
	Environmental permitting	Environmental Permits for sub projects as required	Line Ministries, World Bank
	Monitoring and evaluation	Environmental Management Plans, Monitoring Reports, Annual Environmental Reports	Line Ministries, World Bank

7.6 Environmental and Social Safeguards Monitoring Responsibility

The Climate Change Secretariat will have the overall responsibility for coordinating and monitoring implementation of the ESMF. In addition, this will include conducting sensitization programmes to inform stakeholders about the framework and how it is to be implemented in the context of stakeholder participation. The Climate Change Secretariat currently has already a strong capacity for safeguards monitoring and implementation, through an experience and well trained safeguards officer based in Lusaka. The Climate Change Secretariat’s safeguards officer and staff at all levels, is well versed in World Bank safeguards procedures and guidelines, as the Secretariat has been implementing for several years another World Bank project, following similar processes. The performance of the other World Bank project (Zambia: Strengthening Climate Resilience Project), is rated Satisfactory. In addition, in the Western Province, where the Zambia Strengthening Climate Resilience Project is implemented, the Climate Change Secretariat has already trained local authorities in monitoring and compliance with safeguards.

The Secretariat and the Project Implementation Units in both districts will undertake continuous compliance and impact monitoring to ensure that:

All sub-project activities are implemented according to the environmental management requirements of the ESMF and, where applicable, specific Environmental and Social Management Plans (ESMPs); Problems arising during implementation are being addressed; and Environmental and social mitigation or enhancement measures, designed as per the ESMF, are reflected within specific ESMPs and monitoring plans.

The PIU, Provincial Administration, supported by District technical officers and NGOs, will be responsible for social and environmental monitoring and reporting. The following elements will constitute part of the environmental and social monitoring reports:

- Implementation schedule;
- Extent of community involvement;
- Project expenditure
- Problems arising as well as solutions devised, during implementation; and
- Efficiency of contractors in fulfilling their environmental management obligations.

They will produce quarterly progress reports and annual reports for the PIU. See Annex 13 on annual report form as a guideline.

The cost of implementing and monitoring the ESMF are included in project cost, in particular through a safeguards expert in the Climate Change Secretariat office, social cohesion and safeguards officers in the Provincial Project Coordination Units in the two Provinces targeted by the project, as well as allocation of funds to support local authorities with monitoring and verification tasks. These costs are estimated at about US\$700,000 for the 5 years of the project.

7.6.1 District and Sub-district level

The sub-projects monitoring will be implemented by the relevant stakeholders in different locations. Although the Secretariat is hosted under the MoF, the the Displaced Persons and Border Communities Project recognizes the need for stakeholder participation for monitoring at various levels. These include among others traditional authorities, Government Agencies, Non-Governmental Organizations, Private Sector Organizations, Civil Societies and Development Partners.

Successful implementation of the ESMF, the EMP and the monitoring plan will require input, expertise and resources from all the key stakeholders. It will also require the participation and involvement of the local people and the Local Leaders. Therefore these key stakeholders would need to collaborate in sub-project monitoring at all levels including at national, district and local levels.

7.6.2 National level

The implementing agency will be responsible for the overall environmental and social monitoring of the sub-projects through various implementing structures. The Climate Change Secretariat will have the overall decision making responsibility regarding the monitoring outcomes of the sub-projects, including approval of work plans and budgets relating to activities. The Secretariat will be charged with the day-to-day national level management of the project, and will be strengthened to be able to do so. Therefore, the Secretariat will be responsible, coordinate and monitor implementation of the ESMF and the Environmental Management Plans.

7.6.3 Provincial, District and Local Levels

The CDD sub-component would be coordinated and under the responsibility of the Climate Change Secretariat and the PIUs in the Provinces, and implemented directly by District Councils and/or Ward Area Committees, under the guidance of experienced NGOs, and oversight of provincial technical sub-committees of DDCC and representatives of line ministries. These local institutions will equally be

expected to report of their monitoring and implementation of the respective sub-projects. In this case, the District Councils and/or Local Area Committees will be encourage to use the community monitoring participation approach to come up with all-inclusive monitoring report.

The PIU in consultation with the PPIU will facilitate annual assessment of the sub-projects in both Kaoma and Solwezi/Kalumbila

CHAPTER 8: INSTITUTIONAL CAPACITY ASSESSMENT FOR THE ESMF IMPLEMENTATION

The project is implemented by the Climate Change Secretariat in close coordination with the different stakeholders. In the implementation of the ESMF the Climate Change Secretariat will closely coordinate with the relevant key stakeholders on aspects of local integration aiming to enhance capacities of institutions and individuals involved in project implementation. The following chapter outlines the responsibilities and needs for implementation of the ESMF by all stakeholders.

8.1 National stakeholders

It is expected that the following institutions will play an active role in various components of the implementation of the ESMF for the Displaced Persons and Border Communities Project:

The Ministry of Development and National Planning (MDNP): under the authority of the Vice President is responsible for the development and planning of the areas hosting and surrounding the relocation areas, for coordinating development across different line Ministries represented at the local level, and also overseeing District Councils. In particular, Provincial Chief Planners, who will have a significant role to play in the project, report to the Ministry of Development and National Planning. The MDNP has the responsibility of setting national development priorities and monitoring indicators. Being the implementing agency for the Displaced Persons and Border Communities Project the MDNP is responsible for the national oversight in ensuring project indicators are aligned to national and subnational indicators, and may request information from Climate Change Secretariat on environmental and social safeguards monitoring.

The Climate Change Secretariat (CCS) was established by the Government of Zambia in 2012 to broadly coordinate all climate change programs and projects in the country as well as facilitate mainstreaming of climate change into development planning and budgeting to ensure resilient socio-economic growth. The Climate Change Secretariat has deep understanding and good capacity in management of safeguards, and has an experience and well trained safeguards specialist, familiar with World Bank guidelines. The Climate Change Secretariat has been implementing successfully the Zambia: Strengthened Climate Change Resilience Project, with a satisfactory safeguards compliance track record.

Displaced Persons and Border Communities Project *The Commission for Refugees (COR)* under the Ministry of Home Affairs, the Commission for Refugees has been a key champion of former refugees' local integration, and chairs the National Advisory Group on Local Integration and the Steering Committee for Local Integration. COR has a protection mandate for refugees and will continue to play a role in implementing the legal aspects of the Local Integration process (in coordination with the Department of Immigration in the same Ministry). COR is also likely to

remain engaged on addressing land access issues for the former refugees including the degazetting of the land under the Refugee Act and transfer to the Department of Resettlement (see RPF) The COR will also play a role in overseeing local integration of former refugees and relations between eligible former refugees and current refugees / non eligible former refugees.

The Department of Resettlement (DoR), under the authority of the Vice President, will take over responsibility for the two relocation schemes in Meheba and Mayukwayukwa from the Commission of Refugees and will be responsible for the relocation schemes, development planning, and coordination of the relocation schemes with the functions of relevant local government authorities. The DoR being a specialized agency on allocation of land to both former refugees and host communities will have an active role in the implementation of ESMP in particular on providing technical expertise on land allocation aspects, monitoring and reporting on social cohesion indicators related to access to land and conflict resolution.

Line Ministries (Agriculture, Health, Education, Water, Fisheries, Environmental Resources, Community Development and the District physical planners) are responsible for the planning, implementation and ongoing sustainability of sectoral investments, with various degrees of decentralization of fiscal management and responsibility depending on the sector. In the process of CDD sub-projects, respective technical expertise will be provided by various line ministries through the engagement of District Planning Sub-Committees. These are also the line ministries that are responsible for management plans outlined in the mitigation measures in table 5 and 6 such as land use planning, environmental oversight, community health and safety.

8.2 Local Government Institutions and Capacity Building Needs

The Displaced Persons and Border Communities Project is a new initiative that will benefit from experiences, lessons and capacities of similar on-going project, in particular the Zambia: Strengthening Climate Resilience Project based in the same regions.

The target districts (Kaoma and Solwezi) fall within the Zambia: Strengthening Climate Resilience Project operational areas and will therefore benefit from experience gained by district staff and Participatory Rapid Appraisal facilitators in the application safeguards to sub-projects. There have been other national programmes such as the Zambia Social Investment Fund (ZAMSIF), a Community Driven Development Programme which ran from 2000 to 2005 from which experience can be drawn. This Programme developed the required fiduciary procedures, manuals and materials that were adapted for use under the Zambia: Strengthening Climate Resilience Project and from which lessons are being drawn for the Displaced Persons and Border Communities Project.

Based on the experience from the Zambia: Strengthening Climate Resilience Project, the capacity to implement the ESMF differs at varying levels. Where gaps are identified, training will need to be provided. In Kaoma, the Zambia: Strengthening Climate Resilience Project is already supporting CDD sub-projects, resulting in the district staff and the NGO facilitators of the CDD

process being exposed to applications of environmental and social safeguards screening tools. As no recent CDD-type World Bank projects have been implemented in Solwezi/Kalumbila district, it is expected that the capacity building needs will be greater.

At the local ward levels, it will be important to provide capacity building support in ESMF implementation to the local structures that will be involved in sub-project activities. Local government structures such as the Zone Committees, Ward Development Committees, Sub-Committees of the DDCC have a role in monitoring implementation of sub-projects and will need capacity building in ESMF implementation.

In view of the various structures at local government level, different roles for integrated development planning have been identified as being relevant to the Displaced Persons and Border Communities Project and implementation of the ESMF.

- (i) Districts and Ward Development Committees to mainstream local integration of former refugees and climate resilience into their respective development plans;
- (ii) NGOs to assist districts and Ward Development Committees in facilitating participatory appraisal processes for sub-project identification and screening for safeguards and monitoring implementation;
- (iii) NGOs to assist communities in identifying potential environmental and social impacts of proposed sub-project activities using relevant resource sheets
- (iv) District Planning Sub-Committees to undertake assessment of safeguards during appraisal of sub-project proposals;
- (v) District Development Coordinating Committee (DDCC) to a) support local level implementation through specialized sub-committees handling local integration of former refugee, Environmental Sub-Committee, Planning Sub-Committee and b) identify specialized agencies in the district and include them in the relevant sub-committees;
- (vi) Provincial Planning Sub-Committee to review proposed sub-projects against a set of specific criteria
- (vii) National level structures including the Climate Change Secretariat and ZEMA to consider proposals for funding based on completeness and responsiveness of the proposed project to local integration of former refugees and resilience of livelihoods and local infrastructure;
- (viii) National, Provincial and District level structures to provide technical assistance supporting the target levels according to their needs including resolving problems.

8.3 Civil Society Organisations

Non-Governmental and Civil Society Organisations are active in the areas of the project, and will provide important capacity in the implementation of the ESMF. Please see chapter 5, section 5.5 for an overview of relevant NGOs. Under the coordination of the Climate Change Secretariat NGOs have been active partners of the PPCR regularly participating in PPCR workshops and visits to pilot sites, and at the field level as facilitators of community adaptation techniques.

It is expected that relevant NGOs will be included as CDD facilitators, bringing their expertise from working in the regions to the ESMF implementation

8.4 Vulnerable Social Groups

The current HDI Gender Inequality Index (GII) value for Zambia is 0.752, giving it a rank of 124 out of 138 countries (based on 2008 data). Women are disadvantaged on three dimensions – reproductive health, empowerment, and economic activity. Female participation in the labor market is currently 60% compared to 79% for men. The elderly – both men and women – some men-headed households and the chronically ill are also highly vulnerable. Rural youth are included in this group because they can be particularly disadvantaged in isolated parts of the Zambezi basin, where they lack access to the irrigated land normally reserved for their elders, face high levels of unemployment, and few alternative livelihood options to farming. In general, the prevailing high disparities in economic and social standing between these vulnerable groups and the remaining population make it imperative to design targeted interventions to the benefit of the most vulnerable.

It is important that at the earliest stages of community engagement, facilitators assist communities in identifying vulnerable sections of their society and indicate how such groups will benefit from the proposed sub-project. Typical vulnerable social groups may include women-headed households; widows and elderly (both men and women); rural youths; and people living with HIV-AIDS or caring for HIV-AIDS patients and orphans. Former refugees are particularly vulnerable owing to their status that render them at a disadvantage in accessing basic social goods and services.

These vulnerable social groups will be particularly targeted by the Displaced Persons and Border Communities Project. Given the weak capacity at the sub-district level, NGO partners working with the Displaced Persons and Border Communities Project will need to provide substantial capacity building to these vulnerable stakeholders, including helping them form support groups and assist them in accessing better services and livelihoods.

8.5 Private Sector

Private sector stakeholders in Zambia range from large corporate, small and medium enterprises, to farmers. To date, they have had a somewhat a limited and undefined role in addressing local integration of former refugees, since the freedom of movement for refugees has been restricted. However, given the right incentives and information, have the potential to play leading roles in promoting innovative technologies, providing financial services and for market linkages for agro-products. Private sector actors in the project areas could also be engaged in supporting environmentally sound practices, compliance to equal job opportunities for former refugees and host communities.

Zambia has several agro-business companies that play major roles in the production, processing and distribution of livestock, eggs, dairy products and staple foods. NGOs and districts will explore potential areas of engagement for the private sector to provide appropriate goods and services in the Displaced Persons and Border Communities Project target areas with the aim of facilitating local integration and resilience.

Other relevant private sector players that may exist in the project areas include mobile phone providers which may be engaged in providing information to target communities (including climate and agro-markets information).

8.6 Implementation Arrangements and Capacity Building Requirements

8.6.1 Implementation Arrangements

The implementation arrangements will follow the institutional arrangements outlined in the PAD. The Ministry of Finance (MoF) will take overall responsibility for coordination and execution of the project. The project will be implemented by the Climate Change Secretariat, in the newly created Ministry of Development Planning, under the Vice President, that will facilitate and coordinate the implementation of the project at District, Ward, and community level, through local level planning authorities. The project will also be implemented in close collaboration with the Commission for Refugees, under the Ministry of Home Affairs, set out to progressively transfer responsibility for the local integration agenda to the Department of Resettlement, under the Vice President. At the national level, coordination will be facilitated through the National Advisory Group for Local Integration, the national arm of the Solutions Alliance, including all key national and international partners involved in the local integration process. In addition, coordination between key Ministries and national institutions involved in the local integration process will continue to take place through the Inter-Ministerial Steering Committee on Local Integration. These two groups are already in place, and will thus include the Climate Change Secretariat.

8.6.2 Capacity Building Requirements

The main stakeholders for implementation of the ESMF is the Climate Change Secretariat, the line ministries, in particular the district representatives, the District Councils, District Planning Sub-Committee, COR, and Department of Resettlement. Capacity building will be provided based on the needs of the specific actors. Planning, designing and implementing former refugees and host communities local integration and climate resilient projects and sub-projects in the target districts require an understanding of the *environmental, social impacts and mitigation measures* at community ward and district levels. Training events focusing on these thematic areas will take the form of courses, workshops and specific seminars at national, provincial and district level. Where necessary awareness campaigns may be used to complement or reinforce the trainings.

Specific workshops on the ESMF/RPF and relevant World Bank safeguard policies triggered by this project will be organized for the Climate Change Secretariat, COR, Department of Resettlement and other key stakeholders. As the Climate Change Secretariat is already implementing a similar CDD style World Bank project there is extensive knowledge on environmental and social safeguards, and how to apply standards to sub-projects. As the Climate Change Secretariat will establish a new PIU, training on application of safeguards to sub-projects will be conducted for new staff. The technical staff in District Planning Sub Committee will be trained in World Bank safeguards requirements and the agreed requirements and procedures in this ESMF, in order to routinely support and monitor sub-projects.

The following additional training topics are proposed:

1. Environmental and social Screening Process and Checklists
2. Zambian EIA Procedural Frameworks
3. Preparation of Terms of Reference for ESIA
4. Preparation of simplified ESMP for sub-projects
5. Environmental and Social Clauses in Contractors' contract and bidding documents

The environmental and social safeguards personnel working with the PIU will subsequently have sufficient knowledge and understanding of the implementation of relevant World Bank policies triggered by the project and participate in the training of provincial and district officers.

The awareness creation, capacity building and training workshops will focus on (a) mainstreaming integration of former refugees and host communities into district and provincial development planning, (b) strengthened institutional coordination; (c) improved information for decision makers; and (d) targeted awareness creation. The target group will consist of selected officers directly involved in the implementation of the Displaced Persons and Border Communities Project and sub-projects and will include:

- i. Climate Change Secretariat and the PIUs;
- ii. Commissioner for Refugees;
- iii. Department of Resettlement
- iv. Provincial and District Development Sub-Committees
- v. Ward and communities
- vi. NGOs and where relevant, CBOs

Entity	Responsibilities under ESMF	Capacity building requirements
Climate Change Secretariat	<ul style="list-style-type: none"> • screening of sub-projects • monitoring of compliance and 	<ul style="list-style-type: none"> • For new PIU: workshops on the ESMF/RPF and relevant World Bank

	<p>implementation of mitigation mechanisms</p>	<p>safeguard policies</p> <ul style="list-style-type: none"> • Environmental and social Screening Process and Checklists • Zambian EIA Procedural Frameworks • Preparation of Terms of Reference for ESIA • Preparation of simplified ESMP for sub-projects • Environmental and Social Clauses in Contractors' contract and bidding documents
<p>Provincial and District Planning Sub-Committee, with district representatives of:</p> <ul style="list-style-type: none"> • Ministry of Water • Ministry of Agriculture • Ministry of Fishing • Ministry of Natural Resources • Ministry of Community Development • Ministry of Health 	<ul style="list-style-type: none"> • desk and field appraisal of the sub-projects • monitoring and supporting communities on a monthly basis in the implementation of the projects and implementation of mitigation mechanisms 	<ul style="list-style-type: none"> • Workshops on the ESMF/RPF and relevant World Bank safeguard policies • Environmental and social Screening Process and Checklists • Preparation of simplified ESMP for sub-projects • Monitoring of sub-projects

<ul style="list-style-type: none"> Ministry of Education 		
Commissioner for Refugees (COR)	<ul style="list-style-type: none"> oversight of relocation of former refugees and facilitation of related disputes 	<ul style="list-style-type: none"> Workshop on the ESMF/RPF and relevant World Bank safeguard policies
Department of Resettlement.	<ul style="list-style-type: none"> responsibility for relocation areas, including conflict management 	<ul style="list-style-type: none"> Workshop on the ESMF/RPF and relevant World Bank safeguard policies
NGO/CBOs	<ul style="list-style-type: none"> facilitate CDD process, including facilitation of applications with environmental and social safeguards assessments and mitigation mechanisms 	<ul style="list-style-type: none"> Participatory Rapid Appraisal methodology and training of trainers Workshop on the ESMF/RPF and relevant World Bank safeguard policies, including SGBV prevention mechanisms
Communities and Wards	<ul style="list-style-type: none"> preparation of CDD applications oversight of implementation of CDD projects, including environmental and social mitigation mechanisms 	<ul style="list-style-type: none"> Participatory Rapid Appraisal process for community decisions on CDD project Basic environmental and social safeguards, training, including monitoring

8.6.3 Safeguard Compliance in Participatory Project Planning, Implementation and Community Engagement

Community driven projects and community ownership are essential in ensuring compliance to environmental and social safeguards. Based on various levels of interactions and consultations with communities in the target districts and lessons from on-going similar projects, it is notable that public sector institutions service delivery does not adequately meet communities' expectations. In such cases, NGOs, CBOs and to some extent private sector players have attempted to fill the gap left by public sector institutions in providing support services and undertaking capacity building interventions for the communities.

These support and capacity services are critical in empowering communities to take responsibility for their own development through planning and managing their own projects – in this case, projects and sub-projects that promote local integration of former refugees and climate resilience. When communities get empowered in this way, it follows that they will take greater responsibility for the ensuring compliance to environmental and social safeguards.

Specific courses and participation meetings will be arranged between communities and District Officers, NGOs/CBOs and the private sector representatives (for example service providers for agro-processing, micro finance, sustainable livelihoods and early warning information). The following training topics are proposed:

- Avoiding and Mitigating Environmental and Social Impacts in Community Planning
- Establishing and enforcing Community Rules for Safeguarding
- Community Development Planning and Responsibilities
- Defining Sustainable Development Projects
- Inclusion of Vulnerable Groups in Community Planning and Projects
- Conflict Resolution in Community Decision Making
- Roles and Responsibilities of District Councils and Community in Safeguarding and Conflicts

The participants will include community members and District Officers who should work in close collaboration with the communities in designing, formulating local development plans that highlight local integration of former refugees and resilience. The emphasis of the trainings will be on implementation of safeguards which will include community participation, sustainable planning and management of the projects through enforcement of local safeguards.

As the budgets will be implemented through respective PIUs (in Kaoma and Solwezi/Kalumbila) the costs will be budgeted into the project financing.

8.7 Cost of Implementing the ESMF

The cost of monitoring and implementation of the ESMF is embedded in the budget of the project, and totals above 2% of the cost.

The cost for implementation of the ESMF for the sub-projects in the CDD process is spread out over the cost of facilitators working with communities to develop projects' ESMF screenings, the appraisal by District Planning Sub-Committees, and the routine monitoring by District Planning Sub-Committees and PIU, including infrastructure audit, and the capacity building and conflict training in component 3.

For sub-projects with larger budgets, experiences from the region suggest that costs for implementing an ESMF can be estimated at between 2% to 5% of the total cost of the sub-project. Ongoing independent infrastructure audit's are budgeted into the operational cost of the project, and the PIU will perform ongoing monitoring with the support of technical line ministries.

For any project involving contractual obligations for civil works, the bill of quantities for the civil works contract will contain mandatory environmental and social measures as at least one line item referring to implementing the ESMP in its entirety that shall be executed by the Contractor as integral part of the works. When the Contractor submits payment statements (invoices), between 5-10 % of each statement is withheld for environmental and social measures and will be released for payment after the supervision engineer/officer has confirmed that relevant activities and mitigation measures of the environmental and social requirements have been completed in a satisfactory manner. These provisions will be included in the bidding and contract documents, and shall be binding for the Contractor. This clause will ensure the firm contractual integration of the ESMP requirements, and will be part of the special conditions and also explained in the payment conditions of the civil works contract.

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ANNEXES

ANNEX 1: PRIORITY SOCIO-ECONOMIC INVESTEMENTS IDENTIFIED BY STAKEHOLDERS

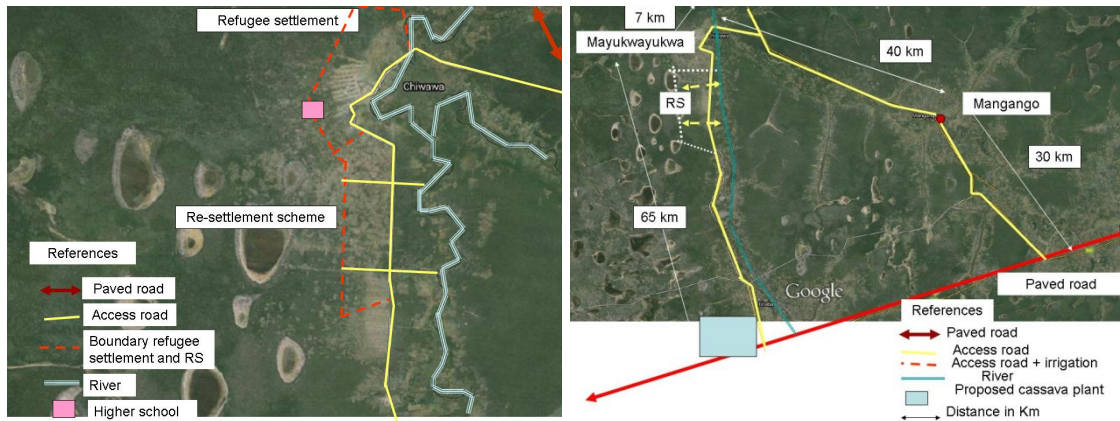
Mayukwayukwa

In Mayukwayukwa, the main socio-economic investments identified during the stakeholder workshops include:

Access and economic opportunities: Road connections to Mongu and Lukulu are critical for the dynamic development of the relocation area. Although the Katunda-Lukulu road has been planned, it will be important to ensure funding for its implementation. Access roads from the relocation area to the surrounding area have also been identified as a priority, including the extension of the main road from the relocation area to the paved road, and establishment of a Cassava processing plant near the road;

Water: Investments in irrigation systems to bring water from the nearby river to the relocation area to facilitate agriculture in a context where the soil is poor and water is scarce the area, as well as provision of water points in farming areas of the relocation areas, have been identified by stakeholders as priority investments;

Figure 12. Mayukwayukwa refugee settlement and relocation areas - map of key proposed investments



Social services: The need to invest in provision of social services across the whole district, including community schools has been emphasized;

Electricity: Extending of the national gridline from Mangango to the refugee settlement and relocation scheme, has been a consistent request;

Phone: Communication towers (as parts of the relocation area are completely outside of the mobile network coverage) would also help link the relocation areas with the rest of the district and country.

Meheba

Access: (i) a new road could be constructed allowing direct passage to the relocation area rather than passing through the refugee settlement, which would allow people living in the relocation area to not have to go through the military check point at the entrance of the refugee settlement. Alternatively, the existing road could be rehabilitated, which would benefit both refugees and people living in the relocation area; (ii) renovation of the small bridge, linking the relocation area with the rest of the District, over the river.

Water: Provision of boreholes in the relocation area is already budgeted, but contributing to surrounding villages is also a priority. In the same line, building proper sanitation systems or at least latrines with proper walling is estimated to be critical to prevent contamination of the groundwater, in areas with high population concentration. Creation of dams to support irrigation will be critical for the future development of the area.

Energy: Provision of an electricity line from the transformer close to the main road down 40 kms through the refugee settlement is critical to support ongoing activities, particularly providing power to the clinic, school and teachers' houses.

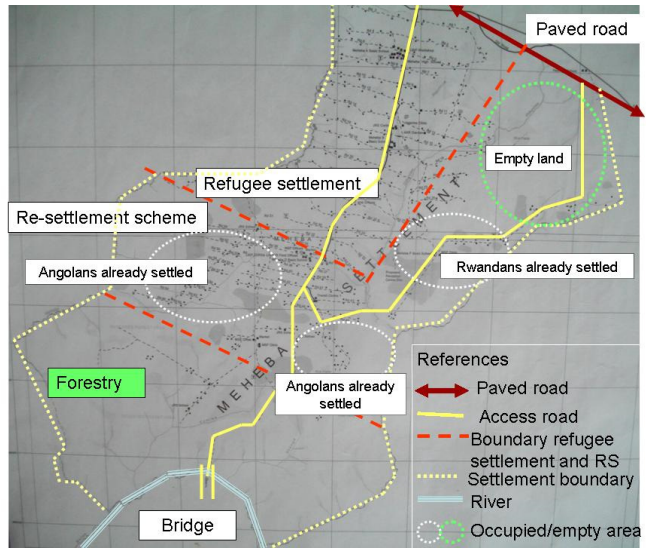
Social services: Primary health staff accommodation and high schools with grade 8 and 9 are two key priorities for the area. The establishment of a police post was also requested.

Agricultural center: Spaces dedicated for stocking, packaging and transport of goods is would help develop opportunities for large scale agriculture.

Loans: Availability of loans, especially for farmers, is essential to ensure that they get the right financial resources and networking in order to position their products in the market.

Housing: Ensuring that there are facilities available for low income groups and workers in general would also help take the needs of the most vulnerable groups into account.

Figure 13. Meheba refugee settlement and relocation area (proposed new lay out) – Map of key proposed investments



ANNEX 2: ATTENDANCE LIST FOR STAKEHOLDER WORKSHOPS

Multi-stakeholder workshops identified the needs listed in annex 1 on July 29 and July 31, 2015

Solwezi

- Chipawa Chipawa, Acting District Commissioner, District Administration
- Patson Phiri, Provincial Planner, Ministry of Local Government and Housing, Department of Physical Planning and Housing
- Nason Phiri, Senior Planning Assistant, Ministry of Local Government and Housing, Department of Physical Planning and Housing
- Iluba Simushi, Hydro-informatics Officer, Department of Water Affairs
- Chrispus Tebid, Head of Office, United Nations High Commissioner for Refugees
- Towa S Chaiwila, Associate Protection Officer, United Nations High Commissioner for Refugees
- Simon Nguluwe, Regional Manager, Zambia National Farmers Union
- Robinson Kalandanya, Scheme Manager, Office of the Vice President, Department of Resettlement
- Richard Ndumba, Accountant, Solwezi District Community Health Management Team
- Muchindu Chimuka, Local Integration Project Officer, Ministry of Nome Affairs, Commissioner for Refugees
- Aggie Chama, Programme Manager, International Development Enterprise
- Buumba Habenzu, Deputy Programme Manager
- Mwangu Wellington, Education Standards Officer, Office of District Education Board Secretary, Solwezi

Kaoma

- Terry Chisha Refugee officer, Ministry of Home Affairs /Commission of Refugees
- Michelo Miyoba, Site engineer United Nations High Commission for Refugees
- Mofya Kaputa, Local integration officer, Ministry of Home Affairs / Commission of Refugees
- Vivas Chabanje, Physical planner, Mongu, Ministry of Local Government and Housing
- Sachibuye Mwanangombe, District administration officer
- Malamo Mwangelwa, District Education Standard Office Ministry of Education. Kaoma.
- Manyando Simataa, District Coordinator, Department of Water Affairs
- Mutale Emmanuel, Caritas Czech Republic
- Nathan Jalata, Ministry of Agriculture

- Emmanuel Sunyangwe, Zambia National Farmer Unions
- Timothy Sakala, United Nations High Commission for Refugees
- Katendi Kaleji, Concern International
- Alick Simbeleko , Health Department
- Stanley Kasompa, Department of Resettlement

ANNEX 3: LIST OF PPCR PROJECTS IDENTIFIED BY COMMUNITIES

The following lists were used for reference for the development of the indicative list of projects to be funded under the Displaced Persons and Border Communities Project, as the CDD process and socio-economic conditions in the areas of the PPCR project were similar to the proposed Project.

Table 11: PPCR projects identified by communities

District	Community	Projects considered most important	Other projects	Skills for development projects
Mongu	Namushakende	<ol style="list-style-type: none"> 1. Support to agricultural diversification 2. Disease Control 3. Social Amenities 4. Infrastructure development 5. Private Sector Driven Finance 6. Reinforcement of early warning systems 7. Sustainable Land management 8. Water Supply and Sanitation 	Animal husbandry Promotion of renewable energy Road development	Animal Husbandry Entrepreneurship skills Agricultural Skills Banking Environment and health
Shang'ombo	Kabula 1 & 2	<ol style="list-style-type: none"> 1. Water Supply and sanitation 2. Disease control 3. Infrastructure 4. Enhance private Sector driven financing 5. Support to agriculture diversification 6. Sustainable land management 		
Senanga	Lukanda	<ol style="list-style-type: none"> 1. Support to agricultural diversification 2. Water Supply and Sanitation 3. infrastructure 4. Private Sector Driven Finance 5. Disease Control 	Promotion of renewable energy Animal husbandry Fish farming value chain	Machine operating skills, Improved farming and aquaculture production skills Livestock management Beekeeping Horticulture skills Agro processing

Sesheke	KalobolelwaNakakwa	<ol style="list-style-type: none"> 1. Support to agricultural diversification 2. 3. Water Supply and Sanitation 4. Sustainable Land management 5. Disease control 6. Enhance private Sector driven financing 7. Reinforcement of community early warning systems <p>Infrastructure development</p>		<p>Mechanical operating skills</p> <p>Growing Climate resilient crops</p>
Itezitezhi	Masasabi	<ol style="list-style-type: none"> 1. Water Supply and Sanitation 2. 3. Infrastructure Support to agriculture diversification and 4. commercialization 5. Disease control Enhance private Sector driven financing 	Health facilities and services	<p>Water maintenance and supply</p> <p>Agricultural Skills</p>
District	Community	Projects considered most important	Other projects	Skills for development projects
Namwala	Showgrounds	<ol style="list-style-type: none"> 1. Water Supply and Sanitation 2. Support to agriculture diversification Infrastructure 3. Disease Control 4. Sustainable Land management 5. Social Amenities 6. 		<p>Borehole operation</p> <p>Agricultural practices</p> <p>Road and drainage maintenance</p> <p>Livestock management</p> <p>Crop diversification</p>
Solwezi	Tundula	<ol style="list-style-type: none"> 1. Sustainable Land Management 2. Water supply and Sanitation 3. Enhance private sector driven finance 4. Support to agriculture diversification and commercialization 5. Infrastructure 	Climate resistant houses	<p>Conservation Farming</p> <p>Water harvesting</p> <p>Livestock management</p> <p>Operation and maintenance of water wells</p>
Mufulira	Murundu	<ol style="list-style-type: none"> 1. Forest, grassland management and afforestation 2. Sustainable Land Management 3. Enhance private sector-driven finance Infrastructure 4. Support to agriculture diversification and commercialization 5. 	Animal husbandry	Entrepreneurship

Lufwanyama	Mwelushi Block (Lumpuma)	<ol style="list-style-type: none"> 1. Infrastructure development 2. Water supply and sanitation 3. Support to agriculture diversification and commercialization 4. Enhance private sector-driven finance 5. Sustainable Land Management 	Animal husbandry	Livestock management
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ANNEX 4: LIST OF PPCR ELIGIBLE PROJECTS

The following lists were used for reference for the development of the indicative list of projects to be funded under the Displaced Persons and Border Communities Project, as the CDD process and socio-economic conditions in the areas of the PPCR project were similar to the proposed Project.

Agriculture and Livelihood Support (incl. sustainable land use management, forest & grassland management, agricultural diversification and commercialization)

- Conservation agriculture and agro-forestry
- Soil conservation measures
- Beekeeping
- Support to NTFP harvesting, usage and marketing
- Grazing management and pasture improvement
- Increased cultivation areas for climate resilient crop varieties
- Increased proportion of climate resilient livestock or increased livestock variety
- Increase of sustainable agricultural practises incl. broader variety of crops, livestock and NTFP
- Commercialization of small scale production
- Constructing and locating Post Harvest Processing or Storage Facility for agro- products and / or NTFP,
- Constructing and locating animal shelters
- Constructing and locating abattoirs
- Constructing and locating animal transport facilities for land or water transport □ Constructing and locating market / trade centers for NTFPs, livestock and crops
- Construction of small fish ponds

Disease Control and Early Warning

Early warning system of livestock and fish diseases through information & veterinary centers / supply of services AND Early warning system of waterborne diseases through information & health centers / supply of services

- Construction of telecommunication centers in communities
- Major rehabilitation of existing centers (health care, schools etc. for enhanced communication)
- Minor rehabilitation (health care, schools etc. for enhanced communication)
- Supply of medical equipment & utilities
- Construction of telecommunication cabling / large antennas □ Installation of smaller, local telecommunication antennas

Possible Supporting Projects

- Construction of waste pits
- Construction and locating livestock shelters
- Construction of medical waste disposal facilities

Water Supply, Sanitation and Regulation

- Community water harvesting structures
- Community water storage structures
- Construction and locating sanitary enhancing latrines
- Sanitary planning / rehabilitation of boreholes or springs
- Construction of local water regulation structures (flood gates, weirs, small dams)
- Construction of flood walls / embankments
- Construction of gabions or other stabilization / erosion prevention engineering structures
- Dredging, drainage ditching or creating cut-off channels for altering water flow □ Construction of small scale irrigation canals
- Construction and locating water pumping stations for irrigation / local flood control
- Construction of ponds / channel series for water retention, storage and directing runoff
- Construction of small waste water treatments
- Rehabilitation of existing canals and dams
- Rehabilitation of wetlands
- Artificial extension of wetland area through engineering for enhanced water retention / support to local livelihoods
- Construction of new storm drains
- Rehabilitation of flood control barriers
- Vegetation planting for flood control

Social Amenities and Infrastructure with Climate Resilience

- Construction of community facilities and centers (health care, school) with climate resilient standards and materials
- Construction of new access road with climate resilient standards and materials
- Constructing and locating of new bridge(s) incl. climate resilient standards and materials
- Construction of new water way / channel with climate resilient standards and materials
- Construction of new sports venue or recreational area with climate resilient standards and materials
- Major rehabilitation of main structure based on climate resilient standards and materials
- Health care

- School
- Accession road
- Water way / channel
- Bridge

- Sports venue
- Recreational area, what:
- Minor rehabilitation of infrastructure based on climate resilient standards and materials
- Health care
- School
- Accession road
- Water way / channel
- Bridge
- Sports venue
- Recreational area, what:
- Construction of market place / trade center
- Sports or recreational facility
- Establishment of safety or escape route

Projects Aimed at Private Sector Engagement

- Out Grower Scheme Project
- Improved local infrastructure(s), describe the infrastructures: to improve access to markets
- Contract farm area ha
- Storage or other post-harvest processing facilities,

Micro Financing / Weather Insurance / Cottage Industry Support Project

- Major rehabilitation of structures / facilities / infrastructure,
- Minor rehabilitation of structures / facilities / infrastructure,
- Needed local structures, infrastructure(s), facilities or Information, Telecommunication and Computing (ITC),
- Construction of structures / facilities / infrastructure

Community Preparedness and Adaptation Projects

- Vulnerability and climate risk / hazard mapping
- Housing project to live with floods (such as houses elevated by poles)
- Transport project to live with floods (such as increased boat production or water traffic)

ANNEX 5: EXAMPLE OF SIGNIFICANCE RATING TABLE FOR IMPACTS

The rating table for impact assessment should be used at field appraisal, to verify the safeguards category. A simplified version is facilitated by the NGO facilitators at project design for CDD projects, in order to determine the initial safeguards category.

Table 12: Significance rating of Social Impacts

No.		Impact characterization														
		Type		Effect		Duration			Change		Spatial extent			Baseline Change		
		Beneficial	Adverse	Direct	Indirect	Short term	Medium term	Long term	Reversible	Permanent	Localised	National	Regional	Low	Moderate	High
	SOCIAL IMPACTS FROM CONSTRUCTION IN PROJECT AREAS															
1.	Loss of assets or access to assets		x		x	x			x		x			x		
2.	Loss of access to natural and cultural heritage sites		x		x		x		x		x				x	
3.	Human health and safety		x		x	x			x		x			x		
4.	Employment opportunities	x		x	x	x			x		x				x	
5.	Improvement in livelihoods and local economies	x		x			x		x			x			x	
6.	Conflicts over natural resources (water, land and grazing lands)		x		x			x		x	x				x	

7	Human health and safety		x	x				x	x		x					x
8	Impacts of road upgrading activities on local communities and other stakeholders		x		x			x	x		x					x
9	Noise pollution		x	x		x			x		x			x		
10	Social misdemeanor by road improvement/construction workers		x		x		x		x		x					x
11	Improved market access	x		x		x			x		x					x
12	Improvement in livelihoods and local economies	x		x	x		x	x		x	x					x
13	Improved food security	x		x				x		x	x					x
14	Increase in SGBV		x		x			x	x		x					x
15	Risk of HIV transmission resulting from increased incomes and interaction of communities		x		x			x		x	x					x

Table 13: Significance Rating of Environmental Impacts

No.	Impact characterization														
	Type		Effect		Duration			Change		Spatial extent			Baseline Change		
	Beneficial	Adverse	Direct	Indirect	Short term	Medium Term	Long Term	Reversible	Permanent	Localized	National	Regional	Low	Moderate	High

ENVIRONMENTAL IMPACTS FROM CONSTRUCTION AND REHABILITATION OF INFRASTRUCTURE IN PROJECT AREAS																
1.	Clearing of Vegetation		x	x	x			x	x		x				x	
2.	Soil and Land Degradation		x	x	x		x				x				x	
3.	Wildlife disturbances		x		x		x	x			x				x	
4.	Exposure to fuel, oil and lubricant spills and leakages from machinery		x	x	x		x	x			x					x
5.	Loss of fragile ecosystems		x	x				x		x	x			x		
6.	Water Quality		x		x		x		x				x			x
7.	Ambient air quality		x	x		x			x		x				X	
8.	Temporary Visual Intrusion		x	x		x			x		x				x	

ANNEX 6: EXAMPLE OF AN ENVIRONMENT AND SOCIAL MONITORING PLAN FOR SUB-PROJECTS

Table 14: Example of and Environmental and Social Monitoring Plan for Sub-Projects

SUB-PROJECT	ENVIRONMENTAL IMPACTS	MITIGATION/ENHANCEMENT MEASURE(S)	MONITORING INDICATOR	FREQUENCY OF MONITORING	RESPONSIBILITY FOR MONITORING
<p>Agriculture and Livestock Practices</p> <p><i>Land Management</i></p> <ul style="list-style-type: none"> • Introducing/scaling-up conservation agriculture • improved management of soil moisture through use of mulch/organic matter and conservation of soil organic matter; 	<ul style="list-style-type: none"> • Increased pressure on land as demand is likely to be triggered by improved incomes from good soil management and moisture retention • Intensives use of land may lead to unsustainable land use practices such as increased/inappropriate use of pesticides and fertilizers • Increased land clearing that may result in deforestation, land degradation and soil erosion 	<ul style="list-style-type: none"> • “Composting” of animal manure, grass and plant material for application to fields – for increased soil moisture retention and improved soil texture in sandy areas such as those in Kaoma • Use of mulch/organic material to reduce loss of soil moisture through evapotranspiration • Sensitization and capacity building on land-use planning • Promotion of good land use planning and practices such as terracing on steep slopes • Promotion of agroforestry as part of erosion control measures • Promote erosion control and management of fields and areas adjacent to the fields 	<ul style="list-style-type: none"> • Number of farmers attending sensitization events/training on making and use of compost from animal manure • Improvement of soil texture as result of regular use of animal/vegetation compost • Number of farmers adopting improved moisture retention techniques • Amount of land under soil erosion control practices such as terracing • Number of farmers practicing mulching • Reduction in amount of land being cleared for new fields 	<ul style="list-style-type: none"> • Depending on the duration of the sub-project monitoring will be done in the middle and at the end • Quarterly (for grouped sub-projects) • Annually (district level) 	<ul style="list-style-type: none"> • PIU • MAL district staff • NGOs

<p><i>Crop Management</i></p> <ul style="list-style-type: none"> • Diversifying agricultural practices such as climate smart crops <p>;</p>	<ul style="list-style-type: none"> • All year round crop production is likely to increase demand for water leading to construction of weirs and small dams which may affect water flows downstream, • Diversification to climate smart crops may introduce some invasive species • Use of chemical fertilizers likely impact the environment and affect the quality of water in the rivers and streams • Increased crop production will likely increase the use of herbicides/pesticides which will affect the environment and the quality of water • Increased crop production likely increase demand for improvement of market centers and access (feeder) roads and farm-to-market road network which will impact the environment (see section on rural roads below) 	<ul style="list-style-type: none"> • Introduce good practices for water resources sharing and management that reduce/eliminate water conflicts • Utilize water harvesting/conservation technologies to reduce demand for ground and surface water • Introduce good crop management planning and farming best practices that include ideal timing for planting and application of soil nutrients • Promotion of organic farming alongside conservation agriculture • Introduce management plans for appropriate use of fertilizers • Develop a pesticide management plan (PMP) that adheres to WB safeguard policies and ZEMA regulations • Promote use of integrated pest management and only use herbicides/pesticides as a last resort particularly near rivers, streams, canals and small dams • Use pesticides/agro-chemicals with short residual period • Avoid introducing alien plant species or crop varieties that may be invasive 	<ul style="list-style-type: none"> • Number of farmers receiving training on organic farming as an alternative to fertilizer dependent • Number of farmers trained in appropriate use of fertilizers and agro-chemicals • Number of farmers adopting organic farming techniques • Implementation/application of PMP in the sub-project • Number of water harvesting/conservation infrastructure 	<ul style="list-style-type: none"> • Depending on the duration of the sub-project monitoring will be done in the middle and at the end • Quarterly (for grouped sub-projects) • Annually (district level) 	<ul style="list-style-type: none"> • PIU • MAL district staff • NGOs
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ANNEX 7: RESOURCE SHEETS

The following resource sheets were developed by the PPCR project to assist communities and district oversight officers in assessing potential impacts of sub-projects. These have been included for reference since sub-projects under the intervention may have similar scope.

They are referred to in the forms used for impact assessments

C14.1: SMALL-SCALE ANIMAL HUSBANDRY

Scope of Projects

Small-scale animal husbandry can be on a commercial basis using intensive stall-fed operations, extensive rangeland grazing, or a mixture of the two. It can also involve mixed farms, traditional pastoral systems or nomadic herding. A variety of animals may be included: cattle, sheep and goats for meat or milk; pigs, poultry and other farmyard animals; camels and draught animals. Land, a supply of feed and water, and often buildings and fencing are required. It can involve farming equipment that must be fuelled, maintained and operated. Cultivating feed may entail the use of agro-chemicals (fertilizers, herbicides and pesticides), and drugs may be used in maintaining animal health. Products include meat, milk and hides as well as manure and liquid waste. Manure, liquid waste and agro-chemicals may be washed into ground or surface waters.

Environmental Concerns

Human Environment

- Human settlements near the project
- Existing land uses to be displaced/converted (e.g. forestry reserves, recreational areas)
- Human health
 - Animal pests and diseases transmitted to humans in the water supply, insects, edible vegetation, and directly
 - Chicken, pigs and other animals close to households

- Animal production using wastes (crop by-products and residues)
- Sensitivity of local population
 - Land tenure system
 - Security of livelihoods
 - Traditional livelihoods (e.g. tribal people)
 - Cultural values
 - Gender division of labour

Natural Environment

- Forests and wilderness areas (areas relatively undisturbed by human development) proposed to be cleared to create grazing land - Habitats for indigenous animal species
 - Number and variety of plant and animal species
 - Important environmental services (e.g. control of erosion, recharge groundwater)
 - Livelihood of indigenous peoples
 - Vulnerable to the pressures of population growth, landlessness and economic development
 - Sustainability: cleared moist tropical lowland forest areas are likely unsustainable for animal production and susceptible to irreparable land degradation
- Vulnerability of arid and semi-arid (marginal) lands to overgrazing and soil erosion
- Areas supporting critical habitats or rare, ecologically or commercially/domestically important plants and animals
- Other areas of special concern, officially designated or recognized nationally and/or internationally
- Environments already significantly degraded
- Soil structure and productivity
 - Vulnerable to inappropriate stocking, stocking densities or extended grazing periods
 - Soil improvement with manure □ Wildlife
 - Competition for natural fodder
 - Persecution and hunting of wildlife by farmers
- Water bodies and hydrology
 - Change in infiltration and runoff rates, overall volumes, and timing
 - Degradation of water quality through erosion and release of agro-chemicals

8.7.6.1 Potential Environmental Effects

Human Environment

MITIGATION MEASURES

- - Human health hazards
- Introduction of diseases to humans and contamination of water supplies for human use by animal manures and urine
- Pollution and environmental disruption from inappropriate use of agro-chemicals
- Collect and store manure for composting and later application to fields
- Keep manure and urine away from household areas and water bodies
- Consider using a bio-gas system
- Provide protective clothes to minimize danger to field workers applying agro-chemicals
- Avoid overuse of fertilizers
- Apply herbicides and pesticides at

8.7.6.1 Potential Environmental Effects

- Transformation of indigenous (sometimes communal) tenure systems and organizations

Soil and Vegetation

- Degradation of vegetation due to
 - Too many animals and overgrazing, possibly as a result of stock improvement measures
 - Excess harvesting of fodder and forage resources
 - Decrease in favoured fodder species and increase in inedible weedy species
- Increased soil erosion due to

- Clearing and degradation of vegetation
- Trampling and loosening of soil
- Animal paths scarring hillsides and triggering erosion, sediment-laden runoff and, possibly, gully formation
- Increased rapid runoff due to
 - Vegetation clearing
 - Soil compaction diminishing infiltration capacity

MITIGATION MEASURES

recommended times and doses

- Consider integrated pest management
- Comprehensive community participation and attention to rights and needs of all groups
- Restrict animal access to unstable areas (e.g. by defining and fencing off critical slopes)
- Use soil erosion control measures (e.g. reforestation, reseeding of grasses, land preparation, terracing)
- Limit animal numbers
- Control length of grazing time and succession of use on particular areas
 - Rotational grazing
 - Development of dry-season grazing areas and grazing reserves
- Mix animal species to maximize use of vegetation resources
- Reseed and produce fodder
- Use cut-and-carry feed from elsewhere

Water Points

- Degradation or depletion of vegetation and soil around water points
- Too much use of surface and groundwater sources results in reductions in surface flow and the water table
- Lowering of the immediate water table and degradation of local vegetation through drilling wells and use of boreholes
- Aggravation of the effect of droughts through poor planning, placement, management and control of water points

8.7.6.1 Potential Environmental Effects

Water Quality

- Increased muddiness of surface water courses due to soil disturbances from grazing and increased soil erosion
- Contamination of surface and groundwaters – and negative effects on wildlife, vegetation, crop yields, aquatic ecology and wildlife – by agro-chemicals used to control pests and diseases
- Contamination of water supplies from leaching or runoff of animal urine and manures

Wildlife

- Displacement or reduction of wildlife populations by loss of habitat
- Disruption of migratory stop-over points
- Competition for food and water resources

MITIGATION MEASURES

ENVIRONMENTAL STANDARDS

- Place water points strategically to spread the effect

ENVIRONMENTAL QUALITY INDICATORS

- the environment
- Choose agro-chemicals that are species-specific, with short

- Develop many small-capacity water sources
- Control use of water points (animal numbers and time of year)
- Fence off permanent water sources when temporary pools and streams are available
- Limit well capacity by choice of technologies (e.g. handpumps or buckets instead of motor pumps)

•

- Use biological pest controls before chemical controls to reduce adding toxic residues to

active period and low impact on other plants

- Choose appropriate spraying measures and timing to minimize water pollution
- Fence off waterbodies from grazing animals
- Plan and implement range management strategies (choice of species, animal numbers, grazing areas) that minimize adverse effects on wildlife and avoid excessive competition

8.7.6.1 Potential Environmental Effects

- Increased poaching and killing of wildlife considered as pests or predators to animals, or as human food sources
- Introduction of diseases to wildlife

Animal Processing

- Degradation of surface waters by effluents with high biochemical oxygen demand (BOD), chemical oxygen demand (COD), and suspended and dissolved solids
- Introduction of diseases to humans through bacteria in discharge effluent
- Land degradation through inappropriate disposal of solid wastes on- or off-site
- Damage to aquatic ecosystem and water supply quality from equipment washing detergents
- Human health effects within the facility
-
-
- Attraction of predators and scavengers

MITIGATION MEASURES

8.7.6.1 Potential Environmental Effects

MITIGATION MEASURES

Sources:

C14.2: Small Dams and Reservoirs

Scope of Projects

Small dams and reservoirs can have many purposes, for example to provide water for irrigation, water supply and aquaculture, to control erosion or floods, and to generate micro-hydro power. They may involve relatively low structures (weirs) to divert water to other uses without creating a reservoir. Higher structures raise water levels and flood land upstream, and can significantly alter the timing and perhaps temperature of downstream flows. The latter may require resettlement of people, land clearing, and the relocation of roads. Structures that divert water to other uses reduce downstream flows with consequent effects on surface and groundwater hydrology, aquatic habitats, and water users. New roads to access dam and reservoir sites can have their own environmental effects (see *Rural Roads* resources sheet)

Even small dams can have complex and significant environmental effects. Planning and design need to be comprehensive and thorough, and will likely involve specialists in a variety of fields (e.g. engineering, hydrology, aquatic ecology, soil and water conservation, sociology, economics).

ENVIRONMENTAL CONCERNS

Human Environment

- Human settlements above, in and below the dam and reservoir area:
 - flooding of homes, agricultural land, roads, and areas of traditional or cultural importance
 - local livelihoods

- downstream water uses such as irrigation, water supply and aquaculture
- traditional or commercial fisheries □ Human health:
- creating habitats for disease carriers such as mosquitoes and snails
- increases in water-related diseases such as malaria, schistosomiasis (bilharzia), onchocerciasis (river blindness), dysenteries, fevers and worms
- Increases in farm animal diseases *Natural Environment*
- Aquatic environments:
 - Blockage of fish migration and access to spawning areas; fish population decreases downstream
 - Altered timing, quantity, quality and temperature of downstream water flows, and thus the quantity and quality of aquatic habitats
 - Reduced nutrient-rich sediments in the released water
 - Altered rates and locations of bed and bank erosion and deposition downstream
 - Reservoir area:
 - Conversion of aquatic species from those that require flowing water to those that need still water, and effects on dependent fisheries
 - Siltation of reservoir if erosion rates in the upstream watershed are high
 - Loss of important habitats and numbers and variety of aquatic species □
 - Terrestrial environments:
 - Raised water table and lowered agricultural productivity beside the reservoir

8.9.1.1 Potential Environmental Effects

MITIGATION MEASURES

8.9.1.2

8.9.1.3 Human Environment

- Loss of productive land (e.g. new dam agriculture, grazing, forestry) □ Consider alternatives to a and reservoir, for example:
- Displacement of people and - Upgrading and renovating families existing water supply and
- Loss of local livelihoods irrigation systems
 - Alternate locations and/or dispersed, smaller dams in less sensitive areas
 - Watershed improvement program to enhance retention

8.9.1.1 Potential Environmental Effects

MITIGATION MEASURES

- Increases in water-related diseases such as malaria, schistosomiasis (bilharzia), onchocerciasis (river blindness), dysenteries, fevers and worms

- Reduction of water available to downstream water users

8.9.1.4

8.9.1.5 Human Health

- Creating habitats for disease carriers such as mosquitoes and snails

Natural Environment (General)

(e.g. water supply, irrigation, livestock watering) are partners in

- Compensate for taken land and

of precipitation in soils (see below)

structures, and resettlement (including re-housing, re-

establishment of livelihood activities, water and sanitation, training)

- Avoid areas of significant economic or

cultural value to local people

- Ensure that downstream water users

8.9.1.1 Potential Environmental Effects

planning the dam and mitigation/compensation measures

- Ensure all construction sites, borrow pits and quarries are properly drained
- Finish and manage reservoir margins for proper drainage
- Vary the reservoir water level
- Proper design and operation of dam spillways and gates (timing and volume of discharges)
- Monitor disease and public health indicators, during and after construction, and take corrective measures (e.g. education, medical) as needed

- Assess the ecology of disease carriers in the watershed
- Employ suitable prevention and mitigation measures, including education of local people and construction workers, e.g.:

- Loss of natural areas, important habitats, and number and variety of species (biodiversity)

- Threatened water source(s) for the reservoir (e.g. siltation, evaporation losses)

- Protected natural areas
- Critical habitats or areas with significant biodiversity (e.g. wetlands)

- Ensure thorough analysis and assessment of potential impacts to develop and plan, as part of the project, an acceptable combination of:

- water releases required to

- Reduction in quantity and quality of aquatic habitats and fish production
- Reduction/loss of downstream subsistence or commercial fisheries
- Blockage of fish migration and access to upstream spawning areas by dam; decreases in fish populations downstream

- Deterioration of reservoir water quality

- sustain habitats and fish production
- habitat improvements to sustain production and fisheries
- development assistance to people dependent on reduced fisheries

- Consider alternate dam locations and possibility of fishway around dam

8.9.1.6 Aquatic Environment – River/Stream

- Reduced or altered timing, quantity, quality and temperature of downstream water flows
- Altered rates and locations of bed and bank erosion and deposition downstream

- Assess state of the watershed, and plan and implement appropriate water conservation program, perhaps including:

- Watershed improvement measures (e.g. revegetation, reforestation, afforestation, controlled use) to reduce erosion and increase infiltration of precipitation
- Training to ensure effective tending of improvement measures (e.g. watering, protection from grazing)
- Agricultural methods that maximize soil moisture conservation (e.g. mulching, terracing, contour cropping, maintaining soil cover)

MITIGATION MEASURES

8.9.1.7

8.9.1.8 Aquatic Environment - Reservoir

- Conversion of aquatic species in reservoir from those that require flowing water to those that need still water, and resulting effects on

8.9.1.1 Potential Environmental Effects

- Avoid:

MITIGATION MEASURES

8.9.1.1 Potential Environmental Effects

fishing activities

MITIGATION MEASURES

- Assess fish production potential of reservoir, and implement feasible measures to enhance production (e.g. habitat design, stocking, aquaculture)
- Provide development assistance to local people to benefit from reservoir fisheries
- Provide areas for bathing, laundering, and animal watering away from reservoir
- Ensure local sanitation facilities do not release pollutants to surface or groundwaters reaching the reservoir
- Prevent livestock access to reservoir

- Deterioration of reservoir water from:
 - Decomposition of flooded vegetation
 - Nutrients in eroded soils and agricultural fertilizers

8.9.1.9

8.9.1.10 Terrestrial Environment

- Raised water table around the reservoir, waterlogging and salinization of soils, and lowered agricultural productivity
- Project support to improve agricultural land drainage and production around reservoir
- Develop tolerant fodder and crop species around reservoir

<p>8.9.1.1 Potential Environmental Effects</p>	<p>MITIGATION MEASURES</p>	<p>ENVIRONMENTAL STANDARDS</p>	<p>ENVIRONMENTAL QUALITY INDICATORS</p>
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- National legislation on protected areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International environmental conventions (e.g. heritage, wetlands)
- National water quality standards and controls
- National controls on use of fertilizers, pesticides and herbicides
- Health and safety standards for construction activities

8.10 Pollution

- Fish deaths
- Concentrations of suspended sediments and contaminants (e.g. pesticides) in surface waters and reservoir
- Reservoir oxygen levels

Environmental Health

- Degree of biodiversity (numbers of plant, fish, animal, and bird species) in the watershed
- Extent of critical habitats

8.11 Human Wellbeing

- Incidence of human and animal illness or disease
- Poverty levels

C14.3: SMALL IRRIGATION SCHEMES

SCOPE OF PROJECTS

Small irrigation schemes can serve a few families or an entire community. They can involve new irrigation for existing rain-fed agriculture, the development of uncultivated areas, and changes or expansions to existing schemes. Water may be pumped from lakes, ponds or underground, or be diverted from streams or rivers⁷. Pipes, channels or ditches carry the water to farmers' fields where it is distributed to crops by gravity on the soil surface, by hand, or by other means.

Irrigated agriculture involves complex soil-water-plant relationships, and should not be undertaken without thorough, informed planning, even at a small scale. While the benefits of irrigation can be obvious and impressive, the adverse environmental effects can be significant, long-term, and perhaps permanent.

The most significant environmental issues with small irrigation schemes concern threats to human health and soil productivity. Health effects arise from stagnant water in canals, ditches or fields that provide habitats for water-borne disease carriers. Losses of soil productivity result from over-irrigation or poor soil drainage. These lead to waterlogging and salinization of the soils, and a reduction or complete loss of their usefulness for cropping. Salinization is the build-up of mineral salts in the soil as water evaporates from the soil surface.

ENVIRONMENTAL CONCERNS

Human Environment

- Concerns about:
 - Community management relationships
 - Land tenure system

Sources:

Environmental Screening of NGO Development Projects for Small Dams / Reservoirs (CCIC 1990/91)

EC Sectoral Environmental Assessment Sourcebook (1993)

⁷ For diversions, see *Small Dams and Reservoirs* resources sheet

- Security of livelihoods
- Gender division of labour
- Health effects of water-borne diseases and infections, and agro-chemicals □
Conflicting demands on surface or groundwater supplies

Natural Environment

- Groundwater supply for other crops and vegetation
- Quality of surface and groundwaters receiving excess irrigation water; or drainage carrying nutrients, agro-chemicals, salts and minerals □ Soils:
 - Waterlogging
 - Salinization
 - Erosion
- Wetlands affected by irrigation or drainage, and threats to their environmental services, biodiversity, and ecological productivity

8.11.1.1 Potential Environmental Effects

MITIGATION MEASURES

8.11.1.2

8.11.1.3 Human Environment

- Upsetting existing social and economic community management relationships, land tenure system, security of livelihoods, and gender division of labour
- Avoid sites that require:
 - Resettlement
 - Displacement of other important land uses, or
 - Encroachment on historical, cultural, or traditional use areas
- Locate and size irrigation schemes:
 - Where water supplies are adequate and the scheme will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons
 - So that withdrawals do not exceed “safe yield” from groundwater resources
- Encourage crops with lower water demands
- Ensure effective community organization for equitable distribution of water

Conflicting demands on surface or groundwater supplies

8.11.1.1 Potential Environmental Effects

MITIGATION MEASURES

8.11.1.4 Human Health

- Creating habitats in canals and ditches for disease carriers such as mosquitoes and snails responsible for spreading diseases such as malaria and schistosomiasis (bilharzia)
- Spreading infection and disease through the inappropriate use of irrigation canals for water supply, bathing or human waste disposal
- Health effects from improper storage, handling, use or disposal of agro-chemicals (pesticides, herbicides)
- Assess ecology of disease carriers in the project area, and employ suitable prevention and mitigation measures, e.g.:
 - Site and orient water works, fields and furrows to ensure adequate natural drainage of surface water
 - Use lined canals and pipes to discourage vectors
 - Avoid unsuitable gradients, and creating stagnant or slowly moving water
 - Construct straight or only slightly curved canals
 - Install gates at canal ends to allow complete flushing
 - Ensure adequate sub-surface drainage of fields
 - Avoid over-irrigation
 - Maintain water works, and clear sediment and weeds, regularly
- Provide/ensure alternate facilities for domestic water supply, bathing and human waste disposal
- Provide education and training for farmers and other community members on:
 - Irrigation health risks
 - Efficient use of irrigation water
 - Maintenance of irrigation and drainage works
 - Proper storage, handling, use and disposal of agro-chemicals
 - Integrated pest management
- Monitor disease/infection occurrence and public health indicators, and take

8.11.1.1 Potential Environmental Effects

MITIGATION MEASURES

corrective measures (e.g. physical changes to irrigation scheme, education, medical) as needed

8.11.1.5 Soils

- Waterlogging management needs □ Thoroughly assess project soils and their needs under irrigated agriculture
- Apply water efficiently. Consider drip or dawn/evening sprinkler irrigation. □ Install and maintain adequate surface and sub-surface drainage
- Use lined canals or pipes to prevent seepage
- Avoid waterlogging (above)
- Mulch exposed soil surfaces to reduce evaporation
- Flush irrigated land regularly
- Cultivate crops having high tolerance to salinity
- Salinization
- Design and layout of furrows appropriately
- Avoid unsuitable gradients
- Avoid over-irrigation
- Install sediment traps in fields and canals to capture sediment for return to fields
- Minimum tillage, contour cropping, terracing and other methods of

8.11.1.1 Potential Environmental Effects

productivity

consequences

- Reduced quality of surface and groundwaters receiving excess irrigation water or drainage (nutrients, agrochemicals, salts and minerals)

ENVIRONMENTAL STANDARDS

- National legislation on protected areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International environmental protection conventions (e.g.

MITIGATION MEASURES

- Erosion

8.11.1.6 Water Bodies and Aquatic Ecosystems

- Loss or damage to wetlands and their environmental services, biodiversity, and ecological
- Avoid

- Locating irrigation schemes on or near important wetlands
- Developing irrigation water sources that may reduce wetland water supply
- Draining irrigated fields into wetlands

- Follow *Soils* mitigation measures (above) to minimize risks of waterlogging and salinization
- Use agro-chemicals appropriately (see *Human Health* above)

heritage, wetlands)

- National water quality standards and **Environmental Health** controls
 - Water table levels in project area □
- National controls on storage, handling, use and disposal of agrochemicals
 - Rate of occurrence of disease carriers

8.13 Human Wellbeing

- Incidence of human and animal illness or disease
- Poverty levels

Sources:

Environmental Screening of NGO Development Projects for Irrigation (CCIC 1990/91)
EC Sectoral Environmental Assessment Sourcebook (1993)

C14.5: Rural Roads

Scope of Projects

Rural roads can have substantial economic and social benefits. They can also have significant negative and long-term impacts. Many of these impacts can be avoided or minimized through careful and comprehensive planning and design. Roads that involve relocation of existing routes, or new access into previously inaccessible areas, can create

- Prevent surface drainage of fields into nearby water bodies (streams, ponds, etc.)
- ### 8.12 Pollution
- Water quality (nutrients, agrochemicals, salinity) in water supply and drainage canals, and wells
 - Physical and chemical properties of irrigated soils

ENVIRONMENTAL QUALITY INDICATORS

particularly difficult impacts on communities and land use, both directly and indirectly. Indirect impacts include the economic, social and environmental effects, whether planned or spontaneous, induced by the improved access and lower transportation costs a road creates. Such new roads and relocations are large projects beyond the scope of this resources sheet.

CIDA-supported rural roads generally involve upgrading existing roads or tracks to improve access to markets, or to services such as health care or schools. They are usually built with local labour, are unpaved, and are narrower and can have tighter curves and steeper grades than highways. They may be all-weather or seasonal, and often include fords or ferries rather than bridges. Close management of construction work is important to avoiding most construction impacts. Adequate road maintenance is essential to avoid environmental problems, and is often inadequate due to lack of funds or well-trained personnel.

The most important direct impact of rural roads is typically erosion – during construction and then operation. Because traffic intensity is low, air and water pollution and noise are generally not significant problems. Indirect impacts need to be considered, but are unlikely to be as significant as those caused by new roads or relocations.

Environmental Concerns

Human Environment

- Human settlements near the road
- Existing land uses (e.g. agriculture, grazing, forestry, recreation) □ Sites of cultural, religious or historical importance □ Sensitivity of local people to:
 - Induced development and resource exploitation along the road
 - Public health consequences during construction and use of the road (e.g. STDs, TB)

- Capacity of local public infrastructure and services to support increased traffic, travellers and induced development
- Security of local and traditional livelihoods, and cash income generation

- Surface water quality (e.g. rivers, ponds)

Natural Environment

- Protected areas (e.g. nature reserves, parks) □ Areas supporting:
 - Critical habitats for rare or ecologically important species, or significant biodiversity (e.g. wetlands)
 - Commercially or domestically important species (e.g. fish, locally hunted wildlife)
- Wilderness areas (habitats for indigenous animal species)
- Soil structure, stability, susceptibility to erosion

8.13.1.1 Potential Environmental Effects

MITIGATION MEASURES

unsustainable, short-cycle cropping; illegal or unsustainable hunting)

8.13.2 Human Health

- Social disruption during construction (e.g. enhanced transmission of STDs and TB)

Human Environment

- Negative social and economic effects on local people and communities, such as:
 - Unplanned commercial development
 - Demand for local public infrastructure and services increases beyond existing capacities
 - Disruption of traditional lifestyles
- Induced population movements and natural resource exploitation activities, due to improved access (e.g. conversion of forest to pasture, or of sustainable land use to

8.13.1.1 Potential Environmental Effects

MITIGATION MEASURES

8.13.1.1 Potential Environmental Effects

- Creation of stagnant water in construction borrow pits and quarries, and on road sides, that breed disease carriers

- Comprehensive community participation in construction planning and management
- Education on avoiding communicable diseases

- Work with affected communities to anticipate and plan for enhanced access to and demand on local public infrastructure and services
- Provide project funds to strengthen local public infrastructure and services (e.g. health clinics, markets, schools)
- Avoid creating congested and unsafe road conditions at intersections, and in villages and towns

- Assess ecology of disease carriers in road corridor, and employ suitable mitigation measures (e.g. proper drainage of construction areas and road sides, effective road maintenance)

- Health risks during road use due to herbicides used to control road-side weeds

Soil and Vegetation

- Loss of natural areas, important habitats, biodiversity
 - Avoid infringing on:
 - Protected natural sites and wilderness areas
 - Critical habitats or areas with significant biodiversity (e.g. wetlands)
 - Landslides, slumps and slips
 - Avoid:
 - Areas of soil, slope or geological instability
 - Unstable river crossing sites
 - Increased soil erosion leading to sediment in runoff and, possibly, gully formation from:
 - Construction activities such as grading, excavations, and borrowing/quarrying
 - Inadequate design of culverts and drainage controls
 - Inadequate maintenance of road surface, ditches, borrow/quarry sites, and drainage and erosion control measures
 - Design:
 - Use surface drainage controls and mulch on vulnerable surfaces and slopes
 - Size and locate roadside drainage and culverts to handle maximum anticipated flows
 - Line receiving surfaces with stones or concrete
 - Locate and design borrow/quarry sites for erosion control during road construction and future maintenance operations
- Construction:

MITIGATION MEASURES

- Minimize use of road-side herbicides

8.13.3 Surface and Groundwater

- Disruption of natural surface and subsoil drainage patterns, especially in flood-prone or wetland areas
- Increased runoff from road surface

- Resurface and revegetate exposed surfaces
- Ensure proper and timely maintenance of erosion control and drainage measures along the road and at borrow/quarry sites

- Contamination by spills oil, fuels and lubricants from construction equipment

- Minimize soil compaction and time that soil surfaces are exposed
- Provide adequate surface drainage control for both construction and operation
- Size and place culverts and bridges correctly

Aquatic Environments

- Soil erosion leading to:

- Collect and recycle used lubricants

8.13.1.1 Potential Environmental Effects

- Increase in the turbidity of surface water courses
- Temporary or permanent covering of riverbed organisms and habitats
- Watercourse and drainage
 - Limit earth movement and soil exposure to the dry season
 - Balance cut and fill for minimum deposition of earth
 - Provide sedimentation basins

MITIGATION MEASURES

- Establish measures to avoid accidental spills, and contain them if they do happen
 - Follow *Soil and Vegetation and Surface and Groundwater* mitigation measures above
 - Install culverts and bridges in dry season
- blockages at culverts and bridges

- Erosion of embankments and roadside slopes

MITIGATION MEASURES

8.13.4 Animals and Wildlife

- Blocked animal and wildlife movements
- Animal/wildlife road kills

- Ensure adequate maintenance of:
 - Culverts and bridges
 - Roadside slopes, drainage control measures and vegetation
 - Road surface

8.13.1.1 Potential Environmental Effects

ENVIRONMENTAL STANDARDS

- National legislation on protected areas (natural, cultural and built environments)
- International environmental protection conventions (e.g. heritage, wetlands)
- National water quality standards and controls
- Health and safety standards for road construction and use

- Avoid fencing across known animal and wildlife movement routes
- Animal/wildlife crossing warnings, nighttime speed limitations or perhaps closures

ENVIRONMENTAL QUALITY INDICATORS

8.14 Pollution

- Concentrations of suspended sediments in surface waters

Environmental Health

- Degree of biodiversity (numbers of plant, fish, animal and bird species)
- in road vicinities
- Extent of critical habitats
- Occurrence of illness or disease
- Frequency of traffic accidents involving vehicles or pedestrians
- Poverty levels

Sources:

EC Sectoral Environmental Assessment Sourcebook (1993)

World Bank EA Sourcebook, Volume II (1991)

CIDA Handbook on EA of NGO Programs and Projects, Rural Roads Checklist (1997)

USAID Environmental Guidelines for Small-Scale Activities in Africa, 2nd Edition (Draft) (2001)

C14.7: COMMUNITY FORESTRY

Scope of Projects

Community forestry projects may be undertaken for a variety of reasons including timber and fuel wood production, soil and water conservation, and micro-watershed protection. They may also include tree nurseries or elements of agro-forestry that yield forest products besides wood (e.g. fruits, nuts). They typically involve afforestation and not existing forests. Reforestation, upgrading and management of existing forests and forestry operations are not considered in this resources sheet.

Clearly, such projects can provide substantial economic and environmental benefits. At the same time, if they are not planned and carried out sensitively, they can also create environmental problems, particularly soil erosion and conflicts over land use and the distribution of project benefits.

8.15 Human Wellbeing

Environmental Concerns

Human Environment

- Human settlements in or near project site
- Existing land tenure and uses (legal or illegal) (e.g. agriculture, grazing, recreation)
- Common lands
- Sites of cultural, religious or historical importance
- Security of local and traditional livelihoods, and cash income generation

Natural Environment

- Protected species
- Protected areas (e.g. watersheds or water basins, nature reserves, parks) □ Areas supporting:
 - Critical habitats for rare or ecologically important species, or significant biodiversity (e.g. wetlands)
 - Commercially or domestically important species (e.g. fish, locally hunted wildlife)

Wilderness areas (habitats for indigenous animal species)

Soil structure, stability, susceptibility to erosion

Surface water quantity and quality (e.g. streams, rivers, ponds, lakes)

8.15.1.1 Potential Environmental Effects

MITIGATION MEASURES

8.15.2 Human Environment

- Displaced human settlements □ Avoid areas that require significant or involuntary resettlement
- Provide compensation for resettled families and lost livelihood opportunities (e.g. cash, in-kind, employment, training)
- Avoid existing land use areas that are economically productive or

- benefits to all community members, and to not exacerbate economic disparities within the community
- Account for differing tree product needs between women and men
- Provide for intercropping, agroforestry and other measures that will accelerate the flow of benefits to, and support of, a range of local people
- Train and use local labour in the development and operation of the forest

8.15.1.1 Potential Environmental Effects

MITIGATION MEASURES

- important for subsistence or traditional livelihoods
- Conflicts over:
 - Land tenure and use (legal or illegal)
 - Security of local and traditional and cash income
- Consider use of already cleared or barren lands for tree planting
- Consider sites currently used unsustainably (e.g. agriculture, grazing) livelihoods,
- Plan and operate the forest to generation ensure an equitable distribution of

8.15.1.1 Potential Environmental Effects

MITIGATION MEASURES

- Avoid such sites, or incorporate them in the project sensitively and to local people's satisfaction

8.15.3 Terrestrial Environment

- Disruption of sites of cultural, religious or historical importance

- Loss of natural areas, important habitats, biodiversity
 - Avoid infringing on:
 - Protected natural sites, watersheds and wilderness areas
 - Critical wildlife habitats or areas with significant biodiversity (e.g. wetlands)

growing □
enhance:

Unsustainable forest production □ indigenous tree species to

- ☒ Effective use of site micro-climates and soil conditions
- ☒ The diversity and flow of benefits to local people
- ☒ Soil and water conservation
- ☒ Resistance to significant outbreaks of disease and pests
- ☒ Wildlife habitat and species diversity
 - Draw upon local cultural knowledge

and values in planning and operating the forest

- Adapt imported technology (e.g. erosion control, forest management and harvesting) to local conditions, rather than just adopt it
- Use low impact equipment and methods for forest management and harvesting, and minimize skid trail distances
- Select sites where the benefits from the new forest can help reduce illegal or unsustainable uses of nearby forests
- If a heavy reliance on cash crops is anticipated, ensure that a thorough market analysis is carried out during project planning

- Avoid areas of fragile or unstable soils/slopes
- Avoid any project activities within 20-40 metres of streams, ponds, etc. unless they are for rehabilitation and conservation of the riparian zones
- Leave existing grass/shrub cover on lands that are very steep or have

shallow soils

- Use techniques such as bunding to strengthen control of surface water flows and erosion, and enhance infiltration

8.15.1.1 Potential Environmental Effects

MITIGATION MEASURES

- Harvest trees in small, unconnected blocks to minimize exposed soils and enhance opportunities for

natural regeneration from adjacent forest

- Road and track development (also see *Rural Roads* resources sheet):

- Construct during the dry season
 - Keep gradients low but sufficient for natural drainage
- Locate as far away from waterbodies as possible
- Leave vegetated strips along roadsides, and reseed disturbed areas
- Coordinate development schedule with overall plan for forest development and operation

- Soil erosion

8.15.4 Water Quantity and Quality

- Reductions in down-slope water supplies
 - Avoid watercourses
 - Retain existing tree and grass/shrub cover, and harvest selectively, sustainably and carefully, where down-slope water supply is a critical concern

8.15.1.1 Potential Environmental Effects

MITIGATION MEASURES

- Avoid overusing fertilizers,

herbicides and pesticides

- Avoid any use near waterbodies

- Pollution of groundwater, and of surface waters and habitats

8.15.4.1 Environmental Standards

8.15.4.2 Environmental Quality Indicators

- National and local planning

- regulations (e.g. land use, forestry, watersheds)
- National legislation on protected areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International protection conventions (e.g. heritage, wetlands)
- National water quality standards and controls
- National controls on use of fertilizers, pesticides and herbicides
- Alternatively, internationally recognized standards (e.g. World Health Organization, United Nations Environment Programme)

8.16 Pollution

- Concentrations of suspended sediments and contaminants (e.g. pesticides) in surface waters

Environmental Health

- Degree of biodiversity (numbers of plant, fish, animal, and bird species) in the watershed
- Extent of critical habitats

8.17 Human Wellbeing

- Poverty levels

Scope of Projects

Aquaculture projects raise aquatic organisms in fresh, brackish or salt marine waters for part or all of their life, and then harvest them for human consumption. The organisms may be fish (e.g. trout, salmon, carp, tilapia), crustaceans (e.g. fresh water crayfish, shrimp, prawns), or molluscs (e.g. oysters, mussels, clams).

Culture methods vary considerably. Intensive methods raise high-value organisms in large numbers in man-made structures. With ponds, fresh or seawater is channelled or pumped in, and old water is discharged through ditches or canals. Use of groundwater may lower water tables. Artificially produced seed, specially made feed, antibiotics to control disease, chemicals to inhibit plant growth, and high initial costs are typical. Waste water and bottom sludge can become toxic and, if not properly treated and managed, can contaminate soil, water and marine resources.

At the other end of the scale are extensive methods that tend to use traditional, lowtechnology cultivation methods, wild seed stock and naturally available feed. Input and output levels, and start-up costs, are much lower than with intensive methods. Extensive aquaculture is frequently developed to satisfy local fish protein needs rather than commercial markets, and is the focus of this resources sheet. The products may be distributed fresh or dried.

Environmental Concerns

Human Environment

- Existing or planned land uses (legal and illegal)
- Community water management practices and relationships
- Conflicting demands on surface or groundwater supplies
- Human health concerns for water-borne diseases and infections

Natural Environment

- Quality of surface and groundwater supplies
- Natural aquatic environments, especially wetlands and mangrove forests

Sources:

ADB Environmental Guidelines for Selected Agricultural and Natural Resources Development Projects (1991)

EC Sectoral Environmental Assessment Sourcebook (1993)

CIDA Handbook on EA of NGO Programs and Projects, Forestry Checklist (1997)

8.17.1.1 Potential Environmental Effects

MITIGATION MEASURES

8.17.2 Human Environment

- Land use conflicts
 - Avoid project sites that require:
 - Resettlement
 - Displacement of other important land uses, or
 - Encroachment on historical, cultural, or traditional use areas
- Encourage use of existing depressions, hollows and ditches
- Limit areas converted to ponds
- Good pond design, construction and maintenance to avoid premature abandonment and digging of new ponds
- Ensure adequate community participation in the planning and operation of the project
- Site ponds to avoid disrupting existing/traditional uses of water (e.g. drinking, washing, animal watering)
- Develop ponds with other activities to combine water uses (e.g. pond water used for irrigation of crops)
- Develop supply sources:
 - Where water quantities are adequate and the project will
- Water supply conflicts: not conflict with existing
 - Social and economic

8.17.1.1 Potential Environmental Effects

MITIGATION MEASURES

disruptions to existing community water management practices and relationships

- Conflicting demands on surface or groundwater supplies

8.17.3 Human Health

- Illness or disease due to pollution of water sources from aquaculture wastes
- Creating habitats for disease carriers such as mosquitoes and snails, and increasing the prevalence of waterrelated diseases such as malaria and schistosomiasis (bilharzia)

8.17.4 Terrestrial Environment

human, livestock, wildlife or aquatic water uses, especially during dry seasons

- So that withdrawals do not exceed "safe yield" from groundwater resources
- See *Water Quality* below
- Assess ecology of disease carriers in the project area
- Employ suitable prevention and mitigation measures, including education of local people, e.g.:
 - Good surface drainage around project water supply, ponds and drainage works
 - Use fish species that feed on disease carriers

- Monitor disease occurrence and public health indicators, and take corrective measures as needed (e.g. change project works, improve

8.17.1.1 Potential Environmental Effects

- Loss of ground cover and erosion at project site

MITIGATION MEASURES

- Restrict area cleared for ponds
- Construct ponds during dry season
- Stabilize exposed soil with grasses and other ground cover
- Ensure good drainage and erosion control around ponds

- Depletion of local fuelwood to dry fish

- Careful project planning and management to ensure sustainable source of fuelwood
- Consider the need for a small, complementary forestry project (see *Community Forestry* resources sheet)

8.17.5 Water Quality

- Pollution of surface waters with aquaculture wastes

- Keep fish densities at moderate levels to reduce disease risk and need for antibiotics
- Pump air through the water to speed up decomposition
- Release pond water into water body with adequate dilution and dispersal capability
- Dilute pond water prior to release
- Time releases with period of high water levels or flows

maintenance, education, medical)

8.17.1.1 Potential Environmental Effects

- Use shorter retention time of water in ponds – i.e. more frequent exchange and flushing of pond water
- Consider using pond bottom sludge as agricultural fertilizer if properly decomposed and non-toxic

8.17.6 Aquatic Environments

- Deterioration of water quality from aquaculture discharges causes contamination or decline of aquatic habitats and resident species
- Loss of wetlands, especially mangrove forests

- Accidental or deliberate release of aquaculture stock leads to decline in wild species important for local food supply or restocking and improvement of domestic stock

8.17.7 Effects of the Environment on the Project

MITIGATION MEASURES

- Ensure adequate pollution control (see *Water Quality* above)

- Site project well away from wetlands
- Design project features to prevent disturbing water flows to and from wetlands (e.g. flow regulating works, access road crossings on trestles or pilings)
- Enhance or protect other nearby wetlands to offset losses at project site

- Use local, wild species rather than introduced species as seed stock

- Ensure aquaculture stock is kept healthy

MITIGATION MEASURES

8.17.1.1 Potential Environmental Effects

- Contamination of aquaculture quality and operations, and deterioration of water quality due to:
 - Analysis of source water quality and operations, and deterioration of threats culture environment, from poor
 - Careful location of the project within source water quality due to: the community and watershed
 - Pollution (e.g. pesticides, heavy metals)
 - Suspended sediments from upstream erosion
 - Nutrients from agricultural runoff and livestock, detergents, sewage

- areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International environmental protection conventions (e.g. heritage, wetlands)
- National water quality standards and controls

8.18 Pollution

- Water quality (nutrients, chemicals, salinity) in pond drainage

Environmental Health

- Surface water flows and groundwater table levels in project area
- Incidence of disease carriers

8.19 Human Wellbeing

- Amount of human and animal illness or disease
- Poverty levels

8.17.7.1 Environmental Standards

- National legislation on protected

8.17.7.2 Environmental Quality Indicators

Sources:

UNEP Environmental Guidelines for Fish Farming (1990)
 EC Sectoral Environmental Assessment Sourcebook (1993)

Field Guidelines for the Environmental Assessment of Rural Credit Loans in Viet Nam (CIDA 2000)

C14.10: FOOD PROCESSING

SCOPE OF PROJECTS

Small-scale food processing may be home-based or small enterprises that use a wide variety of processes and technologies to convert animal and plant products into human food.

Food processing of all kinds can create environmental problems if not managed properly. Solid and/or liquid wastes can be highly polluting and create offensive odours. Water use can place excessive demands on local supplies. Wastewater containing organic and other wastes can degrade streams and rivers, and contaminate groundwater. Stagnant pools of polluted water can be highly odorous and provide breeding grounds for mosquitoes.

Environmental Concerns

Human Environment

- Existing or planned land uses (legal and illegal)
- Community water management practices and relationships Conflicting demands on surface or groundwater supplies Human health concerns sensitivities to:
 - Polluted water
 - Odours
 - Water-borne diseases and infections Worker health and safety due to:
 - Dust
 - Machinery noise and vibration
 - Exposed wires and overheating of electric equipment

Natural Environment

- Quality of surface and groundwater supplies
- Natural aquatic environments

Potential Environmental Effects	Mitigation Measures
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General Measures

- Good overall planning, design and management can address a number of potential environmental effects⁸:
 - Minimize water use (and processing costs)
 - Use “dry cleanup” (e.g. sweeping, wiping down) of solid wastes before washing
 - Regulate water flows (e.g. valves, high pressure nozzles)
 - Reuse water
- Minimize water use (see above)
- Separate fats, grease and other solids
- Minimize liquid waste from wastewater before reuse or disposal (e.g. use oil separators/traps)

⁸ See also *Rural Water Supply and Sanitation* and *Solid Waste Management* resource sheets.

Potential Environmental Effects

- Drain stagnant pools of liquid or areas
- Consider treatment ponds to decompose waste and reduce
- Improve processing methods to
- Reuse organic wastes (e.g. as animal
- Compost organic waste for fertilizer
- Air dry waste in controlled area then

Mitigation Measures

- water from holding pens and working
- disposal costs. Ensure ponds are large enough for effective decomposition and odour control
- recover more product and reduce waste (e.g. better meat trimming and food cutting)
- fodder or fuel)
- dispose in approved landfill or safe burial

Potential Environmental Effects

- water management practices and relationships
- Conflicting demands on surface or groundwater supplies

Mitigation Measures

- Illness or disease due to pollution of water sources from food processing wastes
- Damaging worker health

Human Health

- Minimize product spoilage by using secure, screened, and well-ventilated storage areas
- Minimize solid waste (and lost product)

Human Environment

- Water supply conflicts: □ Minimize water use (see above)
- Negative social and economic effects on existing community □ Develop supply sources: □ Where water quantities are adequate

Potential Environmental Effects

Mitigation Measures

Water Quality

- Degradation of groundwater, streams and rivers from solid and liquid wastes, and consequent and the project will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons
- Practice good housekeeping (e.g. clean floors regularly, install drip trays)
- Repair and maintain machinery for safe and quiet operation

□ So that withdrawals do not exceed “safe yield” from groundwater resources

- Follow *General Measures* above to minimize water use and solid and liquid wastes
- Follow *General Measures* above to minimize water use and provide good management of solid and liquid wastes

□ Deterioration and contamination of aquatic habitats and resident species from waste discharges

- Provide/strengthen health and safety training, accident prevention and equipment (e.g. face masks, rubber gloves, boots, ear plugs, good ventilation)

landfill cannot leak into the ground

Environmental Standards

Environmental Quality Indicators

- National/local standards and **Pollution** regulations for the discharge of industrial wastewater to i) sewers □ Quality (nutrients, chemicals, salinity) and ii) streams and rivers of liquid effluent and receiving waters
- National water quality standards **Environmental Health** and controls
- Workplace health and safety regulations □ Surface water flows and groundwater table levels in project area
- Productivity of aquatic environments receiving liquid waste

Human Wellbeing

- Incidence of human illness or disease
- Screen waste liquids to remove solids
- Install grease traps and skim tanks
- Locate waste disposal sites away from surface and groundwater sources, watercourses, housing and open areas
- Ensure receiving waters for liquid wastes are able to absorb and naturally decompose the effluent.
- Ensure waste that is stored before transport to treatment facility or landfill cannot leak into the ground

Guidelines for the Environmental Assessment of Rural Credit Loans in Viet Nam (CIDA 1999)
 Environmental Sourcebook for Micro-Finance Institutions (CIDA 1997)
 USAID Environmental Guidelines for Small-Scale Activities in Africa, 2nd Edition (Draft) (2001)

TO COME

C14.13: SMALL SCALE AGRICULTURE

TO COME

ANNEX 8: RESOURCE SHEET FOR AGRO-INDUSTRY
(PROCESSING AGRICULTURAL PRODUCTS)

Similar to Annex 6, this has been included as a reference point from the PPCR project to assess potential impacts of sub-grants.

No.	POTENTIAL NEGATIVE IMPACTS	MITIGATING MEASURE
1.	Soil erosion	<ul style="list-style-type: none"> • Proper design and layout of structures avoiding too steep a gradient. • Land leveling. • Design of terraces on hillside minimizing surface erosion hazard.
2.	<ul style="list-style-type: none"> • Increased soil erosion due to clearing of vegetation and trampling. • Increased siltation of surface waters. 	<ul style="list-style-type: none"> • Restriction of construction activities to good ground. • Soil erosion control measures (e.g., reforestation, terracing).
3.	Siting of plant or facility complex on/near sensitive habitats	<ul style="list-style-type: none"> • Location of plant in rural area away from estuaries, wetlands, or other sensitive or ecologically important habitats, or in industrial estate to minimize or concentrate the stress on local environment and services. • Involvement of natural resource agencies in review of siting alternatives.
4.	Siting of agro-industry along water courses leading to their eventual degradation.	<ul style="list-style-type: none"> □ Site selection examining alternatives which minimize environmental effects and not preclude beneficial use of the water body using the following siting guidelines: <ul style="list-style-type: none"> ○ on a watercourse having a maximum dilution and waste absorbing capacity ○ in an area where wastewater can be reused with minimal treatment for agricultural or industrial purposes ○ within a municipality which is able to accept the plant wastes in their sewage treatment system ○ Improved water management; improved agricultural practices and control of inputs. ○ Proper handling of waste. ○ Imposition of water quality criteria.
5.	Siting of agro-industry so that air pollution problems are aggravated.	Location of plant at a high elevation above local topography, in an area not subject to air inversions, and where prevailing winds are away from populated areas.
6.	Environmental deterioration (erosion, contamination of water and soil loss of soil fertility, disruption of wildlife habitat, etc.) from intensification of agricultural land use.	Control of agricultural inputs and cropping/grazing practices to minimize environmental problems.

7.	Aggravation of solid waste problems in the area	For facilities producing large volumes of waste, incorporation of the following guidelines in site selection: <ul style="list-style-type: none"> ○ plot size sufficient to provide a landfill or on-site disposal ○ proximity to a suitable disposal site ○ convenient for public/private contractors to collect and haul solid wastes for final disposal
8.	Water pollution from discharge of liquid effluents <ul style="list-style-type: none"> • Plant: TSS; temperature; pH • Materials storage piles runoff: TSS; pH • Most agricultural, livestock, agro-industries, packaging and marketing operations produce solid waste. <ul style="list-style-type: none"> - Steam and hot water boilers produce ash - Fresh food and processed food markets, waste from canning Livestock production units produce manure, dairy waste, waste from slaughter houses 	<ul style="list-style-type: none"> • Laboratory analysis of liquid effluent (including cooling water runoff from waste piles) in O/G, TDS, TSS, BOD, COD and in-situ temperature monitoring. • Seek guidance of local environmental officers to identify acceptable disposal sites. • Waste from agricultural activities can be further processed into other uses, e.g. organic manure. Reuse and recycling must be preferred over disposal of the waste.
9.	Particulate emissions to the atmosphere from all plant operations.	Control of particulates by fabric filters collectors or electrostatic precipitators.
10.	Gaseous and odor emissions to the atmosphere from processing operations.	Control by natural scrubbing action of alkaline materials; an analysis of raw materials during feasibility stage of project can determine levels of sulfur to properly design emission control equipment.
11.	Accidental release of potentially hazardous solvents, acidic and alkaline materials.	Maintenance of storage and disposal areas to prevent accidental release; provide spill mitigation equipment.
12.	Occupational health effects on workers due to fugitive dust, materials handling, noise, or other process operations. Accidents occur at higher than normal frequency because of level of knowledge and skill.	Development of a Safety and Health Program in the facility designed to identify, evaluate, and control safety and health hazards at a specific level of detail to address the hazards to worker health and safety and procedures for employee protection, including any or all of the following: <ul style="list-style-type: none"> • site characterization and analysis • site control • training • medical surveillance • engineering controls, work practices and personal protective equipment • monitoring • information programs • handling raw and process materials • decontamination procedures • emergency response • illumination • regular safety meetings • sanitation at permanent and temporary facilities
13.	Disease and health problems from use of wastewater to irrigate crops.	<ul style="list-style-type: none"> • Wastewater treatment (e.g., settling ponds) prior to use. • Establishment and enforcement standards for wastewater use in crop production.
14.	Threat to historic, cultural or aesthetic features.	<ul style="list-style-type: none"> • Siting of project to prevent loss. • salvage or protection of cultural sites.

15.	<p>Temporary Visual Intrusions</p> <p>Rehabilitation and upgrading of agricultural facilities like Warehouses, processing plants and other possible facilities will change the characteristics of the area and leave marred landscapes.</p>	<ul style="list-style-type: none"> • Contractor should ensure minimum footprint of construction activities and provide decent accommodation for workers. • All altered landscapes (Sand pits, borrow pits, brick molding sites etc) should be rehabilitated by the contractor.
13.	<p>Noise</p> <ul style="list-style-type: none"> • Noise and vibration caused by machines, site vehicles, pneumatic drills etc • Noise from the chicken, pigs or whatever animals which are being raised. • Noise from the processing of agricultural produce. 	<ul style="list-style-type: none"> • Contractor to avoid old equipment. • Heavy duty equipment to be minimized. • Noisy operations to be limited to certain times. • Noise levels to be limited to within acceptable levels. • Animal raising to be in designated areas to avoid being a nuisance to the general public. • Processing plants should be sited away from residential areas.
14.	<p>Social misdemeanor by construction workers</p> <p>Impacts associated with the contractor's camp include:</p> <ul style="list-style-type: none"> • disposal of liquid and solid wastes. • theft, alcoholism and sexually transmitted diseases (especially HIV/AIDS). 	<p>As a contractual obligation, contractors should be required to have an HIV/AIDS policy and a framework (responsible staff, action plan, etc) to implement it during project execution.</p> <p>Contractor to curb thefts and misbehaviour through a code of conduct.</p> <p>Contractor to manage any of its waste properly.</p>

ANNEX 9: PRELIMINARY ENVIRONMENTAL AND SOCIAL SCREENING FORM AND TRIGGERS FOR PROJECT FORMULATION STAGE

The form is filled out by the applicant for the project. For CDD sub-projects, this is facilitated by the community facilitators. The form is to be included in the project proposal form

Please use the table below to summarize the potential environmental and social effects of the proposed project and include in your proposal submission

Please note according to the triggers that there may be a need to prepare additional safeguards instruments.

Expected environmental and social effects	Affected by project?		How will the project affect this?	What actions will be taken to reduce/avoid the effect ⁹
	Yes	No		
Protected area				
Wetland				
Vegetation/Forest				
Sites of cultural/historical importance				
River/canal				
Lake/lagoon				
Domestic water sources				
Wildlife				
Soil disturbance				
If answer is yes to one or more of the listed environmental and social effects, conduct a detailed environmental assessment of the project and prepared an environmental and social management plan				

⁹

People's access to income or land				
Displacement/removal of people				
If answer to this is yes, conduct further assessment and prepare a Resettlement Action Plan				
More people moving into the area				
Materials taken from local sources (water, stones, gravel, timber)				
Other effects not listed above				

ANNEX 10: ENVIRONMENTAL AND SOCIAL SCREENING FORM AND TRIGGERS FOR SUB-PROJECTS AT FIELD APPRAISAL

To be used with the impact evaluation form in previous annex at field appraisal to confirm assigned safeguards category.

		Yes	No	ESMF Resource Sheets
A	Type of activity – Will the sub-project:			
		Yes	No	ESMF Resource Sheets
1	Support small scale agricultural activities?			1
2	Support small scale animal husbandry or processing?			1
3	Involve small-scale aquaculture?			6
4	Livelihoods diversification (e.g. beekeeping, production of crafts in less climate sensitive locations)?			1
5	Support small scale irrigation schemes?			3
6	Involve the construction or rehabilitation of ponds, wells, boreholes, small dams, weirs or reservoirs?			2
7	Involve rehabilitation/dredging of canals?			2
8	Build or rehabilitate any community rural roads?			4
9	Involve community forestry and afforestation?			5
10	Involve community game ranching/wildlife estate?			
11	Rehabilitate community structures or buildings?			C14.12
12	Be located in or near an area where there is an important historical, archaeological or cultural heritage site?			B5.3
13	Be located within or adjacent to any areas that are or may be protected by government (e.g. national park, national reserve, world heritage site) or local tradition, or that might be a natural habitat?			B5.4
<p><i>If the answer to any of questions 1-13 is “Yes”, please use the indicated Resource Sheets or sections(s) of the ESMF for guidance on how to avoid or minimize typical impacts and risks</i></p>				
B	Environment – Will the sub-project:			
14	Risk causing the contamination of drinking water?			
15	Cause poor water drainage and increase the risk of water-related diseases such as malaria or bilharzia?			
16	Harvest or exploit a significant amount of natural resources such as trees, fuel wood or water, fish?			

17	Be located within or nearby environmentally sensitive areas (e.g. intact natural forests, wetlands) or threatened species?			
18	Create a risk of increased soil degradation or erosion?			
19	Affect the quantity or quality of surface waters (e.g. rivers, streams, wetlands), or groundwater (e.g. wells)?			
If the answer to any of questions 14-19 is “Yes”, please include an Environmental Management Plan (ESMP) with the sub-project application.				B5.1, C8
C Land acquisition and access to resources – Will the sub-project:				
20	Require that land (public or private) be acquired (temporarily or permanently) for its development?			B6.1
21	Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)			B6.1
22	Displace individuals, families or businesses?			B6.1
23	Result in the temporary or permanent loss of crops, fruit trees or household infrastructure such as granaries, outside toilets and kitchens?			B6.1
24	Result in the involuntary restriction of access by people to legally designated parks and protected areas?			B6.4
If the answer to any of the questions 26-29 is “Yes”, please consult the ESMF and, if needed, prepare a Resettlement Action Plan (RAP)				B6.2, B6.3, C10
D Pesticides and agricultural chemicals – Will the sub-project:				
33	Involve the use of pesticides or other agricultural chemicals, or increase existing use?			
If the answer to question 33 is “Yes”, please consult the ESMF and, if needed, prepare a Pest Management Plan (PMP).				B5.2, C9

CERTIFICATION

We certify that we have thoroughly examined all the potential adverse effects of this sub-project. To the best of our knowledge, the sub-project plan as described in the application and associated planning reports (e.g. EMP, RAP, IPP, PMP), if any, will be adequate to avoid or minimize all adverse environmental and social impacts.

Community representative

Name: _____ (signature): _____

Date: _____

District/PIU representative (signature): _____

Name: _____ (signature): _____

Date: _____

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Desk Appraisal by Review Authority:

- The sub-project can be considered for approval.** The application is complete, all significant environmental and social issues are resolved, and no further sub-project planning is required.

- A field appraisal is required.**

Note: A field appraisal must be carried out if the sub-project:

- Needs to acquire land, or an individual or community's access to land or available resources is restricted or lost, or any individual or family is displaced
- May restrict the use of resources in a park or protected area by people living inside or outside of it May affect a protected area or a critical natural habitat
- May encroach onto an important natural habitat, or have an impact on ecologically sensitive ecosystems (e.g. rivers, streams, wetlands)
- May adversely affect or benefit an indigenous people
- Involves or introduces the use of pesticides
- Involves, or results in: a) diversion or use of surface waters; b) construction or rehabilitation of latrines, septic or sewage systems; c) production of waste (e.g. slaughterhouse waste, medical waste); d) new or rebuilt irrigation or drainage systems; or e) small dams, weirs, reservoirs or water points.

The following issues need to be clarified at the sub-project site:

.....
.....
.....

A Field Appraisal report will be completed and added to the sub-project file.

Name of desk appraisal officer (print):

Signature: Date:

ANNEX 11: SITE IDENTIFICATION FORM

Sub-project Name:

Sub-project Location:

Beneficiaries:

Community Representative and Address:

Extension Team Representative and Address:

Site Identification:

It is imperative to rate the sensitivity of the proposed site when selecting the location of a sub-project. Rating is based on the criteria listed in the table below.

The site identification form is used during field appraisal to confirm the safeguards category.

Higher ratings do not automatically imply that a site is unsuitable. Instead, it is taken as a clear indication of the high risk of triggering significant negative environmental and social effects. It means that more substantial environmental and/or social planning may be required if the potential negative effects are to be avoided, mitigate or managed.

Issues	Site Sensitivity			Rating (L,M,H)
	Low	Medium	High	
Natural habitats	No natural habitats present of any kind	No critical natural habitats; other natural habitats occur	Critical natural habitats present	
Water quality and water resource availability and use	Water flows exceed any existing demand; low intensity of water use; potential water use conflicts expected to be low; no potential water quality issues	Medium intensity of water use; multiple water users; water quality issues are important	Intensive water use; multiple water users; potential for conflicts is high; water quality issues are important	
Natural hazards vulnerability, floods, soil stability/ erosion	Flat terrain; no potential stability/erosion problems; no known seismic/ flood risks	Medium slopes; some erosion potential; medium risks from volcanic/seismic/ flood/ hurricanes	Mountainous terrain; steep slopes; unstable soils; high erosion potential; volcanic, seismic or flood risks	
Involuntary resettlement	Low population density; dispersed population; legal tenure is well-defined; welldefined water rights	Medium population density; mixed ownership and land tenure; well-defined water rights	High population density; major towns and villages; low-income families and/or illegal ownership of land; communal properties; unclear water rights	

Community representative

Name: _____ (signature): _____ Date: _____

NGO/CBO representative

Name: _____ (signature): _____ Date: _____

ANNEX 12: ENVIRONMENTAL AND SOCIAL FIELD APPRAISAL FORM

NAME OF PROJECT

Application Number:

PART 1: IDENTIFICATION

Project Name:

Project Location:

Project Beneficiaries:

Reason for Field Appraisal: Summarize the issues from the ESMF Checklist that determined the need for a Field Appraisal.

Date(s) of Field Appraisal:

1. **Field Appraisal Officer:** _____
2. **District/SPIU Representative:** _____
3. **Community Representative and Address:** _____

PART 2: DESCRIPTION OF THE PROJECT

4. **Project Details:** Provide details that are not adequately presented in the sub-project application. If needed to clarify sub-project details, attach sketches of the sub-project component(s) in relation to the community and to existing facilities

PART 3: ENVIRONMENTAL AND SOCIAL ISSUES

5. Will the project:
 - Need to acquire land?
 - Affect an individual or the community's access to land or available resources?
 - Displace or result in the involuntary resettlement of an individual or family?

Yes	No

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

- The Resettlement Action Plan (RAP) included in the sub-project application is adequate. No further action required.
- The RAP included in the sub-project application must be improved before the application can be considered further.
- A RAP must be prepared and approved before the application can be considered further.

6. Will the project:

- Encroach onto an important natural habitat?
- Negatively affect ecologically sensitive ecosystems?

Yes	No

If “Yes”, tick one of the following boxes:

- The Environmental Management Plan (EMP) included in the sub-project application is adequate. No further action required.
- The EMP included in the sub-project application must be improved before the application can be considered further.
- An EMP must be prepared and approved before the application can be considered further.

7. Are there indigenous people living in the sub-project area who could benefit from, or be adversely affected by, the sub-project?

Yes	No

If “Yes”, tick one of the following boxes:

- The Indigenous Peoples Plan (IPP) included in the sub-project application is adequate. No further action required.
- The IPP included in the sub-project application must be improved before the application can be considered further.
- An IPP must be prepared and approved before the application can be considered further.

8. Will this project involve or introduce pesticides?

Yes	No

If “Yes”, tick one of the following boxes:

- The Pest Management Plan (PMP) included in the sub-project application is adequate. No further action is required.
- The PMP included in the sub-project application must be improved before the application can be considered further.
- A PMP must be prepared and approved before the application can be considered further.

9. Will this project involve or result in:

- Diversion or use of surface waters?
- Construction and/or rehabilitation of latrines, septic or sewage systems?
- Production of waste (e.g. slaughterhouse waste, medical waste, etc.)?
- New or rebuilt irrigation or drainage systems?

Yes	No

If “Yes”, tick one of the following boxes:

- The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.
- The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An Environmental Management Plan must be prepared and approved before the application is considered further.

10. Will this project require the construction of a small dam or weir?

Yes	No

If “Yes”, tick one of the following boxes:

- The application demonstrates that the structure(s) will be designed by qualified engineers, and will be built by qualified and adequately supervised contractors. No further action is required.
- The application does not demonstrate that the structure(s) will be designed by qualified engineers, and will be built by qualified and adequately supervised contractors. The application needs to be amended before it can be considered further.

11. Will this project rely on water supplied from an existing dam or weir?

Yes	No

If “Yes”, tick one of the following boxes:

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

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

Yes	No

If "Yes", summarize them: _____

and tick one of the following boxes:

- Before it is considered further, the application needs to be amended to include suitable measures for addressing these environmental or social issues.
- An Environmental Management Plan needs to be prepared and approved before the application is considered further.

PART 4: FIELD APPRAISAL DECISION

- The sub-project can be considered for approval.**

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

- Further sub-project preparation work is required before the application can be considered further.**

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

All required documentation such as an amended application, EMP, RAP, IPDP or PMP will be added to the sub-project file before the sub-project is considered further.

Name of field appraisal officer (print):

Signature: Date:

ANNEX 13: COMMUNITY SUB-PROJECT MONTHLY REPORT

Instructions: This form must be sent to the Project Officer for your project every month without fail. Attach additional information as needed should the form below not provide enough space.

Progress report for the month of:.....

Project name:.....

Project number:.....

Village/area name:.....

District:.....

PHYSICAL PROGRESS: (List all the project components and the progress to date, (e.g school one - completed construction of walls: school two – cement poured).

Component	Description of project to date
1.	
2.	
3.	
4. Etc	

Comments on project progress: (Report if there have been any problems that require the attention and assistance of the Regional or Project Officer).

Problem/Issue	Comments

ANNEX 14: GUIDELINES FOR ANNUAL REVIEWS

Annual Report Form

NAME OF PROJECT

Application No:

1. Name of District:
2. Beneficiaries:
3. Name and Position of Review Authority Completing the Annual Report:
4. Reporting Year:
5. Date of Report:
6. Community Sub-projects:

Please enter the numbers of sub-projects in the following table. (Note: The types of sub projects should be Based on list in Chapter 5 of the ESMF.)

Types of Activities	Approved this year	Application included an ESMF checklist	Field Appraisal				
			ESMP	PMP	RAP	IDP	Specific TA
Community Level Infrastructure							
Water point rehabilitation							
Hand dug wells							
Earth dam rehabilitation							
Community reservoirs							
Small dams							
Water harvesting facility							
Hand pumps and mechanized boreholes							
Windmills for pumping water							
Community access roads							
Agriculture and Livestock Diversification							

Improved moisture retention								
Livestock watering facilities								
Farm produce markets								
Vaccination services								
Agro-forestry activities								
Agro-processing facilities								
Post harvest handling facilities								
8.20 Types of Activities	Approved this year	Application included an ESMF checklist	Field Appraisal					
			ESMP	PMP	RAP	IDP	Specific TA	
Market places								
Natural Resources Management								
Community tree nurseries								
Afforestation								
Erosion prevention interventions								
Soil moisture/fertility restoration								
Beekeeping/crafts production								
Water shed protection								
Stream and river bank protection								
Wetland protection								
Grazing pasture improvements								

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

Sub-project	Problems	Actions taken	Actions to be taken

7. Have any **other environmental or social analyses** been carried out by other public or private agencies in your district/province? If so, please describe them briefly.

.....
.....

8. Have you noticed any particular **problems with implementing the ESMF** in the past year (e.g. administrative, communications, forms, capacity)? If so, please describe them briefly.

.....
.....

9. **Training:** Please summarize the training received in your district/province in the past year, as well as key areas of further training you think is needed.

Group	Training Received	Training Needed
Review Authority		
Approval Authority		
Extension Teams		
Communities		

ANNEX 15: GUIDELINES AND EXAMPLE OF FOR AN ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

An Environmental Management Plan (ESMP) is required for sub-projects involving physical works or management activities that have distinct environmental and social impacts. The ESMP must be included in the sub-project application. Preparation of such an ESMP for community sub-projects should be done with assistance from the NGO or District Planning Sub-Committee (as the case may be) facilitating the sub-project application. The main elements of an ESMF are listed in the table below:

Table 15: Elements of an ESMP

	Element	Description
1	Sub-project activities	The sub-project for which an application for funding is being prepared should identify activities involved and to the extent possible, described in detail
2	Adverse effects	The anticipated negative environmental and social effects are identified and summarized
3	Mitigation measures	Each adverse effect should have a mitigation measure described. As needed, detailed plans, designs, equipment descriptions, and operating procedures are described
4	Monitoring indicators	Monitoring provides information on the occurrence of adverse environmental and social effects and how their reduction will be measured over time. It helps identify how well mitigation measures are working, and where better mitigation may be needed. The monitoring plan should identify what information will be collected, how, where and how often. It should also indicate at what level of effect there will be a need for further mitigation.
5	Responsibilities for monitoring	The people, groups, or organizations that will carry out the mitigation and monitoring activities are defined, as well as to whom they report and are responsible. There may be a need to train people to carry out these responsibilities, and to provide them with equipment and supplies.
6	Frequency of monitoring	The timing, frequency and duration of mitigation measures and monitoring are specified in an implementation schedule, and linked to the overall sub-project schedule.
7	Cost estimates and sources of funds	These are specified for the initial sub-project investment and for the mitigation and monitoring activities as a sub-project is implemented. Funds to implement the ESMP may come from the sub-project grant, from the community, or both. Government agencies and NGOs may be able to assist with monitoring.

8	Monitoring Methods	<p>Methods for monitoring the implementation of mitigation measures or environmental and social effects should be as simple as possible, consistent with collecting useful information, so that community members can apply them themselves. For example, they could just be regular observations of sub-project activities or sites during construction and then use. Are fences and gates being maintained and properly used around a new water point; does a stream look muddier than it should and, if so, where is the mud coming from and why; are pesticides being properly stored and used? Most observations of inappropriate behavior or adverse effects should lead to common-sense solutions. In some cases (e.g. unexplainable increases in illness or declines in fish numbers), there may be a need to require investigation by a technically qualified person.</p>
<p><i>Adapted from ESMF Tool Kit – Part C (June 2004)</i></p>		

ANNEX 17: ZEMA: GENERIC ENVIRONMENTAL PROJECT BRIEF REPORT FORMAT

EXECUTIVE SUMMARY

▪ Briefly describe the proposed project, technology, lifespan, project objectives, location, investment cost, alternatives considered, relevant legislation, major impacts and environmental management commitments.

TABLE OF CONTENTS

1.0 INTRODUCTION

- Summary description of the project including project rationale
- Project objectives
- Developer's physical address, contact person and details
- Particulars of shareholders and directors
- Percentage of shareholding by each shareholder
- Track record (previous experience of enterprise)
- Brief description of the location
- Total Project cost/investment
- Proposed project implementation date

2.0 LEGAL AND POLICY FRAMEWORK

2.1 Policy, legal and institutional framework relevant to the project

Policy, legal and institutional framework relevant to the project. Include specific sections of the cited policy, legal and institutional framework relevant to the proposed project

Relevance of cited sections to the proposed development

Compliance (how the development complies/will comply to the cited sections)

2.2 International agreements and Conventions

International agreements and conventions relevant to the proposed project. Include specific sections of the agreements and conventions relevant to the proposed project.

Relevance of cited sections of the agreement or convention to the proposed development

Compliance (how the development complies/will comply to the cited sections)

3.0 DESCRIPTION OF THE PROJECT

3.1 Location

Describe the project location supported by a location map drawn to an appropriate scale with a legend, direction of the True North. The location map must be printed on at least "A3" paper size for it to be clear.

Provide the spatial extent of the proposed project site (Province, City/Municipality/district, specific site)

Provide land marks and their distances from the proposed site to help identify the proposed project site

Identify surrounding developments

Provide coordinates of the proposed site where applicable

3.2 Nature of the Project

- Raw materials (including hazardous materials and their storage on site)
- Process and technology (including flow diagrams)
- Products and by-products
- Production capacity
- Schedule and life time of the project

3.3 Main activities

- Site preparation phase
- Construction phase
- Operation phase

4.0 Project Alternatives

i. Identification of alternatives such as but not limited to:

- a. Project need
- b. Site
- c. Design
- d. Technology
- e. Process
- f. Raw materials
- g. Justification for the selected option(s)

ii. Analysis of each of the identified alternatives

iii. List of chosen alternatives in order of preference

iv. Reasons for choosing the preferred alternatives and rejecting the other alternatives

5.0 DESCRIPTION OF THE BASELINE ENVIRONMENT

5.1 Ecological Resources

a. Fauna

- Terrestrial species (Include common names and respective scientific names)

- Aquatic species (Include common names and respective scientific names)
- Identification of rare or endangered species (Include common names and respective scientific names)

b. Flora

- Terrestrial species (include common names and respective scientific names)
- Aquatic species (include common names and respective scientific names)
- Identification of rare or endangered species (include common names and respective scientific names)

c. Birds

- Field survey of bird species (include common names and respective scientific names)
- Identification of rare and endangered bird species

Italise scientific names

5.2 Geology and hydrogeology

5.3 Drainage

5.4 Climate

5.5 Landscape and topography

5.6 Land use and soils

5.7 Ground and surface water

5.8 Air quality and noise

5.9 Social, economic and cultural issues

5.10 Built Environment

6.0 ENVIRONMENTAL IMPACTS

Identify and discuss

6.1 Positive Impacts

6.1.1 Socio-economic environment

6.1.2 Physical environment

6.1.3 Biological environment

6.2 Negative Impacts

6.2.1 Socio-economic environment

6.2.2 Physical environment

6.2.3 Biological environment

6.3 Methodology of Impact Evaluation

Evaluation of impacts for significance should combine:

- the **frequency** of occurrence of the impact
- the **duration** of the impact
- the **severity** of impact
- the **spatial extent** of the impact
- the **sensitivity** of the element being impacted.




7.0 ENVIRONMENTAL SOCIAL MANAGEMENT PLAN (State the Environmental Management Commitments for mitigating negative Environmental Impacts identified in Section 6.0 and measures for enhancing positive impacts.

7.1 Environmental Monitoring Plan (These should include environmental management cost estimates, responsible personnel and the frequency of monitoring)

Aspect	Impact	Mitigation/ Enhancement measure	Frequency of Monitoring	Time frame	Performance indicator	Responsible person	Cost
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ANNEX 18: DRAFT GRIEVANCE REDRESS MECHANISM

Figure: Grievance Redress Mechanism for the Project

	Focal Point Unit/Organizations	Focal Persons	When a complaint is submitted...	Recording complaints
National	<ul style="list-style-type: none"> ○ National Project Implementation Unit (PIU) 	<ul style="list-style-type: none"> ○ National Coordinator ○ M&E Officer ○ Independent Auditor 	<p>The PIU (or an independent auditor) will try to address it.</p> <ul style="list-style-type: none"> ➤ When resolved, the person who raised the issue will be informed. ➤ If not resolved, the complaint will be reported to the World Bank. 	<ol style="list-style-type: none"> 1. Record the complaint submitted in the national-level grievance database. 2. Review monthly monitoring submitted by the district/provincial-level, and enter all complaints with the status will be recorded in the national-level grievance database. 3. M&E officer will periodically review the grievance database and follow-up with focal persons to ensure all cases will be addressed.
				
Provincial	<ul style="list-style-type: none"> ○ Provincial Planning Sub-Committee ○ Provincial Project Implementation Unit 	<ul style="list-style-type: none"> ○ Provincial Planner ○ Provincial Project Manager ○ M&E Officer 	<p>The planner and the project manager will discuss the issue and try to address it at the provincial level.</p> <ul style="list-style-type: none"> ➤ When resolved, the person who raised the issue will be informed. ➤ If not resolved, the complaint will be reported to the National Coordinator (or if the complaint regards the Coordinator, submit to the Independent auditor). 	<ol style="list-style-type: none"> 1. Record the complaint submitted in the monitoring form. 2. Submit the project's monthly monitoring form including a record on complaints to the national-level PIU.
				
District	<ul style="list-style-type: none"> ○ District Planning Sub-Committee 	<ul style="list-style-type: none"> ○ District Planner 	<p>The planner will try to address it at the district level.</p> <ul style="list-style-type: none"> ➤ When resolved, the person who raised the issue will be informed. ➤ If not resolved, the complaint will be reported to the Provincial Planner. 	<ol style="list-style-type: none"> 1. Record the complaint submitted in a monitoring form. 2. Submit the project's monthly monitoring form including a record on complaints to the Provincial PIU
				
Ward	<ul style="list-style-type: none"> ○ Ward Development Committee 	<ul style="list-style-type: none"> ○ Ward Development Committee Chairperson 	<p>The chairperson will try to address it at the ward level.</p>	<ol style="list-style-type: none"> 1. Record the complaint submitted in a simple form.

		<ul style="list-style-type: none"> ➤ When resolved, the person who raised the issue will be informed. ➤ If not resolved, the complaint will be reported to the District Planner. 	<ol style="list-style-type: none"> 2. Submit the record of complaints to the District Planning Sub-Committee
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Zone/
Community

<ul style="list-style-type: none"> ○ Project Committee ○ Maintenance Committee ○ Traditional Structure ○ Facilitator 	<ul style="list-style-type: none"> ○ Project Committee Chairperson ○ Village head/Area Induna ○ Facilitator 	<p>The focal persons at the community level will discuss and try to address it within the community</p> <ul style="list-style-type: none"> ➤ When resolved, the person who raised the issue will be informed. ➤ If not resolved, the complaint will be reported to the Ward Development Committee Chairperson. 	<ol style="list-style-type: none"> 1. Record the complaint submitted in a simple form. 2. Submit the record of complaints to the Ward Development Chair Committee.
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