



Mpatamanga Hydropower Project

Environmental & Social Impact Assessment

Volume III - Environmental & Social Management & Monitoring Plan

Prepared for
MHPL

Revision D
31 July 2024



Revision Record

Revision	Date	Prepared by:	Checked by:	Description:
A	07 June 2024	Marjorie Bremond Dominique Buffin	D Buffin	First issue for MHPL review
B	10 June	Nicholas Bukowski Jessica Hughes		Second issue, correction in Section 6.1.
C	02 July 2024	Izak Olivier Clement Repussard		Third Issue for SCATEC review
D	31 July 2024	Matthew Scott		Fourth issue for WB RSA review

Citation: SLR Consulting (2024). Mpatamanga Hydropower Project: Environmental and Social Impact Assessment, ESMMP, Revision D, July 2024.

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SLR Consulting France SAS
2 Square Roger Genin, 38000 Grenoble, France
T: +33 6 23 37 14 14
www.slrconsulting.com



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Acronyms

Acronym	Full text
ADC	Area Development Committee
AIS	Alien Invasive Species
AP	African Parks
BAP	Biodiversity Action Plan
BMEP	Biodiversity Monitoring and Evaluation Plan
BMP	Biodiversity Management Plan
BOMIP	Biodiversity Monitoring and Evaluation Plan
BOOT	Build-own-operate transfer
CBO	Community-Based Organisation
CC	ESHS requirements assigned to the EPC Contractor: <u>Contractor Construction</u>
CC	Climate Change
CCA	Community Conservation Areas
C-ESMMP	Construction Environmental & Social Management and Monitoring Plan
CHA	Critical Habitat Assessment
CIA	Cumulative Impact Assessment
CLO	Community Liaison Officers
CR	Critically Endangered
CRA	Climate Resilience Assessment
dB	Decibel
DCC	Downstream Coordination Committee
DD	Data Deficient
DEM	Digital Elevation Model
DEC	District Executive Committee
DHMT	District Heath Management Team
DNPW	Department of National Parks & Wildlife
DoFi	Department of Fisheries
DoMM	Department of Mines and Minerals (part of Ministry of Mining)
DWR	Department of Water Resources
E&S	Environmental & Social
EAA	Ecological Area of Analysis
EBRD	European Bank for Reconstruction and Development
EDF	Electricité de France
EFA	Environmental Flow Assessment
Eflow	Environmental Flow
EHA	Environmental Health Area
EIA	National Environmental Impact Assessment
EN	Endangered
EO	Environmental Officer
EPC	Engineering, Procurement & Construction
EPP	Emergency Preparedness Plan
ESHS	Environmental, Social, Health & Safety
ESIA	International Environmental & Social Impact Assessment
ESMMP	Environmental & Social Management and Monitoring Plan
ESMS	Environmental and Social Management System
ESS	World Bank's Environmental & Social Standards
FAQ	Frequently Asked Questions



FBO	Faith-Based Organisation
FSL	Full Supply Level
GBVH	Gender-Based Violence and Harassment
GBV/SEA/SH	Gender-Based Violence, Sexual Exploitation and Abuse, and Sexual Harassment
GC	ESHS requirements assigned to the GoM during construction: <u>G</u> overnment <u>C</u> onstruction
GCP	Group Control Point
GHG	Greenhouse Gas
GIIP	Good International Industry Practices
GLAC	Guide on Land Acquisition and Compensation
GO	ESHS requirements assigned to the GoM during operation: <u>G</u> overnment <u>O</u> peration
GoM	Government of Malawi
GRB	Grievance Review Board
GRM	Grievance Redress Mechanism
GVGRC	Group Village Grievance Redress Committees
GVH	Group Village Head
HH	Household
HPP	Hydropower Project
HSA	Health Surveillance Agent
HSE	Health, Safety & Environment
HSS	Health Safety Strengthening
IBA	Important Bird Area
ICOLD	International Commission on Large Dams
IFC	International Finance Corporation
IHI	Index of Habitat Integrity
ILO	International Labour Organisation
IUCN	International Union for the Conservation of Nature
ITN	Insecticide Treated Net
IWRM	Integrated Water Resource Management
KBA	Key Biodiversity Area
km	kilometre
LADP	Local Area Development Program
LC	Least Concern
LCA	Life Cycle Assessment
LESA	Land Evaluation and Site Assessment
m. asl	Elevation in meters above sea level
MAREP	Malawi Rural Electrification Programme
MCP	Management of Change Procedure
MEPA	Malawi Environment Protection Authority
MERA	Malawi Energy Regulatory Authority
MHPL	Mpatamanga Hydropower Project Limited
MoH	Ministry of Health
MOL	Minimum Operation Level
MOMA	Mozambique Malawi Power Interconnection Project
MoU	Memorandum of Understanding
MUST	Malawi University of Science and Technology
MWASIP	Malawi Watershed Services Improvement Project
Mm ³	Million cubic metres
N/A	Not Applicable
NGO	Non-Governmental Organization
NRMC	Natural Resource Management Committee
NT	Near Threatened
NTS	Non-Technical Summary



NTU	Nephelometric Turbidity Units
NWRA	National Water Resource Authority
OC	ESHS requirements assigned to MHPL during construction: <u>Owner Construction</u>
OHS	Occupational Safety & Health
OO	ESHS requirements assigned to MHPL during operation: <u>Owner Operation</u>
PAP	Project Affected People
PGRC	Project Grievance Redress Committee
PIU	Project Implementation Unit
PMF	Probable Maximum Flood
PPA	Power Purchase Agreement
PPP	Public Private Partnership
RAP	Resettlement Action Plan
RoW	Right of Way
RPF	Resettlement Policy Framework
RWG	Resettlement Working Group
SDG	Sustainable Development Goals
SEP	Stakeholder Engagement Plan
SME	Small/Medium and Microenterprise
SS	Substations
SVTP	Shire Valley Transformation Program
TA	Traditional Authorities
TDG	Total Dissolved Gas
TL	Transmission Line
TSS	Total Suspended Solids
UNESCO	United Nations Educational, Scientific and Cultural Organization
VDC	Village Development Committee
VU	Vulnerable
WASH	Water Sanitation and Hygiene
WBG	World Bank Group
WESM	Wildlife & Environmental Society of Malawi
WHO	World Health Organisation
WL	Water Level
WR	Wildlife Reserve
ZAMCOM	Zambezi Commission



Preamble

This report is the Environmental & Social Management and Monitoring Plan (ESMMP) for the Mpatamanga Hydropower Project (Project). It forms Volume 3 of the Environmental and Social Impact Assessment (ESIA) Report. The purpose of the ESMMP is to guide the implementation of mitigation measures and monitoring requirements identified through the ESIA process. This ESMMP is currently a draft prior to being made available for public disclosure. Feedback on the ESIA and ESMMP during the public disclosure process could affect the content of the final ESMMP.

Volume 1 Non-technical Summary	Volume 2 Environmental & Social Impact Assessment	Volume 3 Environmental & Social Management and Monitoring Plan
	<ul style="list-style-type: none"> • Chapter 1: Introduction • Chapter 2: Project Description • Chapter 3: Methodology • Chapter 4: Legal framework • Chapter 5: Baseline • Chapter 6: Alternatives Analysis • Chapter 7: Stakeholder Engagement • Chapter 8: Impact Assessment • Chapter 9: Eflows Assessment • Chapter 10: Climate Change • Chapter 11: Cumulative Impacts • Chapter 12: Transboundary Impacts 	<ul style="list-style-type: none"> • Chapter 1: Introduction • Chapter 2: E&S Management Approach • Chapter 3: ESIA and E&S Commitments • Chapter 4: ESHS requirements – All EPCs • Chapter 5: ESHS requirements - MHPL • Chapter 6: ESHS requirements - GoM • Chapter 7: Workplan & Budget



1 Objective and Structure of the ESMMP

1.1 Project Overview

The proposed Mpatamanga Hydro Power Project (the Project) is being developed by Mpatamanga Hydro Power Limited (MHPL). The Project is in the Southern Region of Malawi, within the Blantyre and the Neno Districts, on the Shire River, the largest river in Malawi, between the existing Tedzani and Kapichira hydropower schemes (see Figure 1-1). The proposed Main Dam (55 m high) will create a 20 km² reservoir at full supply level, with a total storage volume of 272 million m³. Water from the Main Reservoir will drop by approximately 66 m to a 301 MW powerhouse located 1 km downstream of the Main Dam. The water discharged from the main powerhouse into the Shire River (installed capacity of 550 m³/s) will then flow into a 1.4 km² regulating reservoir (at full supply level) created by a 45 m high regulating dam located 6 km downstream on the Shire River. Water from the Regulating Reservoir will be discharged into the Shire River through a 57.5 MW powerhouse located at the foot of the dam (installed capacity of 388 m³/s). From the upper part of the main reservoir to the Regulating Dam, the Project footprint will extend over 29 km of river length.

No Project facilities directly encroach into existing or planned internationally recognised biodiversity areas. A short distance (< 300 m) downstream of the Regulating Dam, the Shire River will flow through the IUCN Category IV Majete Wildlife Reserve for 11 km before entering the existing Kapichira reservoir.

The Project will have a generation capacity of 358.5 MW, composed of two plants – the 301 MW peaking plant at the Main Dam and the 57.5 MW baseload downstream plant at the Regulating Dam. The Project is expected to contribute to reducing energy shortages and enhancing energy security in Malawi. The 301 MW plant, with its Main Reservoir storage, is designed to provide much-needed energy during peak demand hours of the day and overall grid stability with its ability to ramp up or down production to meet actual demand. The targeted average annual energy production is 1,544 GWh (Main Dam and Regulating Dam combined).

The electricity generated by the Project will be delivered to the grid through two transmission lines: a 63 km long 400 kV transmission line from the main powerhouse to the existing Phombeya sub-station; and a 10.5 km long 132 kV transmission line that will connect to the Regulation Dam powerhouse to the existing Tedzani-Kapichira Transmission Line.

Part of the existing S137 road, which links Blantyre to Mwanza, will be flooded by the future Mpatamanga Main Reservoir. A new by-pass section of the S137 road will be built by the Project, and will pass over the main dam. The future Chileka-Mwanza/M6 to S137 road will be ~50 kms long. Out of these, 11.5 kms will be newly constructed by the Project to bypass the Main Dam and its reservoir, and 34.5 kms will be upgraded on the Blantyre side.

For the operational phase, a permanent operators' village will be built close to the main powerhouse, to accommodate the operators of the two dams. A new 6 km long service road will be built by the Project from the main powerhouse to the regulating dam. During the construction period, the workforce will be accommodated in one construction camp that will be located close to the main Project facilities, away from the Majete Wildlife Reserve.

A 54-month construction schedule has been estimated for the Project, starting in early 2026. The commissioning of the powerhouses is scheduled for mid-2030. Early works (resettlement sites) are planned to be executed from 2025.



The Project is to be developed on a build-own-operate-transfer (BOOT) basis by MHPL and the Government of Malawi (GoM), in coordination with the IFC. MHPL is the Project Company. MHPL will be responsible for constructing and operating the Project for a period of 30 years, after which time it will be transferred to GoM for continued operation and maintenance. An Implementation Agreement, which stipulates the responsibilities of MHPL and GoM, will support the BOOT agreement.

The BOOT approach allows GoM to be protected from operating risk, while at the same time allowing it to benefit significantly from a 30% share in the Project through EGENCO. The remaining 70% of MHPL will be owned by EDF (27.5%), Scatec (14%) and its joint venture partners British International Investment (6.75%) and Norfund (6.75%), as well as the IFC (15%).

Finance will be provided by EDF, Scatec, the IFC, and the Government of Malawi, using funds from the World Bank Group, as well as debt from development finance institutions (the Lenders), to be co-ordinated by the IFC.

1.2 Objectives of the ESMMP

This ESMMP is an umbrella document that gives direction to the development of the full complement of management plans necessary for the Project. The broad aims of the ESMMP are:

- To ensure compliance with national regulatory authority stipulations and guidelines, as well as ensuring compliance with the environmental and social (E&S) policies and standards of the Lender(s);
- To describe the practical requirements in sufficient detail that resources can be easily assessed and allocated;
- To state the agreed environmental and social objectives for the Project and verify environmental and social performance through information on impacts as they occur;
- To respond to changes in Project implementation not considered in the impact assessment process thus far or to respond to unforeseen events.

To achieve these objectives, the ESMMP contains the following information:

- Definition of the environmental and social commitments and mitigation strategy identified in the ESIA;
- Overview of the management actions necessary to implement the commitments and mitigation strategy, including where appropriate at this stage of the Project, the manner in which they will be executed, the schedule, the resources and performance indicators;
- Description of the means of monitoring and assessing the performance of the social and environmental actions, so that they can be adapted and/or improved, plus the corresponding documentation;
- Definition of responsibilities: roles, communications and reporting process required for the implementation of the ESMMP.

The methods and processes provided in this ESMMP will form part of the contractual agreement between MHPL and once appointed, the EPC Contractors. The final version will guide measures to address:

- The adoption of good practice at the time of construction;
- The incorporation of the findings of pre-construction site investigations related to environmental and social issues;
- Changes resulting from the preferred construction methods to be adopted by the appointed contractors; and
- Unforeseen conditions encountered during site preparation, construction/ commissioning activities and post-construction reinstatement.



1.3 Who is this ESMMP for?

The ESMMP is an operational document that is available to the public for information. It is linked to the 2024 ESIA (see Section 3) and it is intended for several parties:

- Local communities and organisations: The ESMMP describes the ESHS requirements to mitigate negative impacts and corrective measures to adapt to unforeseen changes during its implementation. The ESMMP forms a basis for exchanges and negotiations in the consultation phases and the validation of the mitigation and compensation strategy proposed by MHPL;
- Lenders: The ESMMP provides evidence that the commitments made through the 2024 ESIA documentation and the financing process, which reflect the Lenders' E&S policy¹ requirements, are implemented, budgeted, resourced by a suitably sized E&S team and can be monitored and audited";
- MHPL and their Implementation Consultants: The ESMMP acts as the environmental and social roadmap for construction and operation of the Projects. It sets out the commitments made by MHPL before the authorisation to start the main construction works and establishes the logic behind the social and environmental actions. In so doing it sets out the obligations on MHPL and those that are delegated to their Implementation Consultants;
- Developers of other projects in the Shire watershed, upstream and downstream of the project. The ESMMP informs such parties of the objectives of each social and environmental action. In this way, it helps to facilitate possible synergies or avoid interference with other project ESMMPs, and to develop collective solutions, where appropriate; and
- Other Stakeholders responsible for monitoring the environmental and social impacts of the Project and the effectiveness of the mitigation measures (e.g. government departments or agencies, NGOs). It is also a reference document that local and central authorities can use to check that MHPL honours its commitments in the construction and operations phases.

The EPC Contractors (as defined by the type of FIDIC contract) for any part of the Project will develop the Construction ESMMP (C-ESSMP) which will be aligned with this document as explained in Chapter 2. The C-ESSMP will describe in detail the execution methods of the ESHS requirements outlined in Chapter 4 of this ESMMP.

1.4 Source Documents and Outputs

The ESMMP is the framework document that summarizes all environmental and social measures required by the various project ESIA documents (i.e. the source documents) and which translates them into management actions. Detailed specific management plans will be further developed and/or executed as outputs of the ESMMP during the construction phase or during the operation period.

The source documents include:

- ESIA Report prepared to meet Malawi EIA regulations for the purposes of obtaining construction permits;
- 2024 ESIA reports;
- Environmental and social policies of the lenders; and
- EDF, SCATEC and IFC corporate environmental and social policies.

The output documents are:

¹¹ In this ESMMP, the term 'E&S' (Environmental and Social) includes all aspects of the Lenders E&S policies, including environmental, social, security, Occupational Health and Safety, labour and cultural heritage.



- The EPC Contractor C-ESMMP prepared by the Contractors to achieve the E&S performance objectives set out in the present ESMMP;
- The MHPL Environmental and Social Management System (ESMS) required to implement and monitor the Management Actions described in this ESMMP;
- Detailed management plans described in this ESMMP to address the mitigation and compensation measures identified through the ESIA. Several of these plans have already been developed and are disclosed together with the present ESMMP: (i) Resettlement Policy Framework (RPF), (ii) Biodiversity Action Plan; and (iii) Stakeholder Engagement Plan.
- Documents that will be produced and disclosed during the course of the Project's development to inform on the Project's construction and operation activities and the results of the environmental and social monitoring activities.

1.5 Key Dates

The key dates for the Project's construction and operation activities are summarized in Table 1-1.

Table 1-1: Key Dates

Project Milestone	Output Documents
ESIA public disclosure	August to November 2024
Signature of EPC Contracts	January 2025
Detailed Design	2025
S137 road upgrade	2025
Main construction period	2026-2030
Reservoir Filling	2029
Start of operation phase	2030

1.6 Structure of the ESMMP

Although there is no universally accepted standard format for ESMMPs, the format needs to fit the circumstances in which the ESMMP is being developed. The present ESMMP has been prepared in 2024 before the EPC Contractors are appointed and before any of the necessary Construction Permits have been received.

The ESMMP is structured as follows:

- The present Chapter 1 briefly introduces the context and the objectives of the ESMMP;
- Chapter 2 describes the approach of the ESMMP which is based on good international practice (GIP) and the requirements of the Lenders;
- Chapter 3 summarises the Project's commitments to mitigate or compensate the impacts predicted by the ESIA;
- Chapter 4 describes the ESHS requirements that must be adopted by all Contractors employed to deliver the Project;
- Chapter 5 outlines the ESHS requirements that are the responsibility of MHPL and the Implementation Consultants;
- Chapter 6 describes the ESHS requirements that are the responsibility of the Government of Malawi;
- Chapter 7 provides the timeframe for the ESHS requirements implementation and the associated budget.



2 Environmental and Social Management Approach

2.1 Introduction

The ESMMP describes a set of environmental, social, health and safety (ESHS) specifications that have been originated following the outcomes of the ESIA and to reflect GIP in the construction of large infrastructure projects. The following sections describes how these ESHS requirements are organised and implemented.

2.2 Responsibilities

During the construction phase (see key dates in Section 1.5), MHPL has the overall responsibility for environmental and social management of all Project activities. This includes the following responsibilities:

- Ensuring compliance with all relevant national legislation, as well as with the environmental controls and mitigation measures contained in this ESMMP;
- Ensure compliance with applicable Lender Standards;
- Ensure that the detailed design and planning is in compliance with national requirements and aligned with international best practice;
- Monitoring the performance of EPC contractors and sub-contractors used for providing workforce, supplies and services;
- Acting as point of contact for consultation and feedback to stakeholders and the public (stakeholder engagement); and
- Training of construction workers to raise awareness in the fields of E&S topics and in general implementation of this ESMMP.

Responsibilities for the preparation and implementation of the Resettlement Action Plans are distributed between the Government of Malawi (Compensations and resettlement assistance) and MHPL (Livelihood restoration and monitoring).

During the operation phase, of the project, responsibility for environmental and social management of the project facilities will be shared as described in Table 2-1.

Table 2-1: Responsibility for Environmental and Social Management During Operation

Component	Project Facilities	Construction	Operation	
			First 30 Years	After 30 years
Hydropower facilities	Dams, powerhouses, Operators village	MHPL	MHPL	GoM Ministry of Energy
Reservoirs	Main reservoir	MHPL	MHPL (exclusive zones ²) NWRA (central part)	GoM Ministry of Energy
	Regulating reservoir	MHPL	MHPL	GoM Ministry of Energy
Roads	S137 road from Chileka Airport on Blantyre Side to S137 Junction on Neno Side	MHPL	National Roads Authority	GoM National Roads Authority

² 500 m from the main dam, and 500m from the tailrace of Tedzani 4 HPP.



Component	Project Facilities	Construction	Operation	
			First 30 Years	After 30 years
	Access road from main dam to regulating dam	MHPL	MHPL	GoM National Roads Authority
Transmission Lines	400kV transmission line and 132kV transmission line	MHPL	ESCOM	ESCOM
	Phombeya Sub-Station	MHPL	ESCOM	ESCOM
Resettlement Sites	Chaswanthaka and Kambalame	GoM Department of Land	Communities	Communities

2.2.1 ESMMP During Construction

2.2.1.1 EPC Contractor E&S Responsibilities

MHPL will take the full responsibility of the environmental & social management of the construction of the Project. However, MHPL will delegate to the EPC Contractor the implementation of the ESHS specifications relating to the construction methods.

The ESHS requirements assigned to the EPC Contractor are set out in Chapters 4 and 5 of this ESMMP and have been tagged: [CC-XX]³. These ESHS requirements will form part of the EPC Contracts with MHPL. EPC Contractors are required to fulfil these ESHS requirements and also to ensure that its sub-contractors fulfil the ESMMP. This includes the following:

- Conduct monitoring and on-site audits to verify implementation of the ESMMP and report on findings to MHPL;
- Communicate any environmental issues and incidents to MHPL immediately.
- Support MHPL with the training of the construction workers to raise awareness in the fields of E&S topics and in general implementation of this ESMMP.

The EPC Contractors will develop a Construction-ESMMP and associated sub-plans or procedures to describe how the ESHS requirements will be managed and implemented. MHPL will supervise the Contractor and approve the Contractors C-ESMMP.

2.2.1.2 MHPL E&S Input

During construction, there are also ESHS requirements which will be the responsibility of MHPL. The ESHS requirements that are the responsibility of MHPL are tagged [OC-XX] and are set out in Chapter 6 of the ESMMP under the form of sub-plans. MHPL will establish an ESMS to define the responsibilities, practices and resources necessary for implementing the Project ESHS requirements.

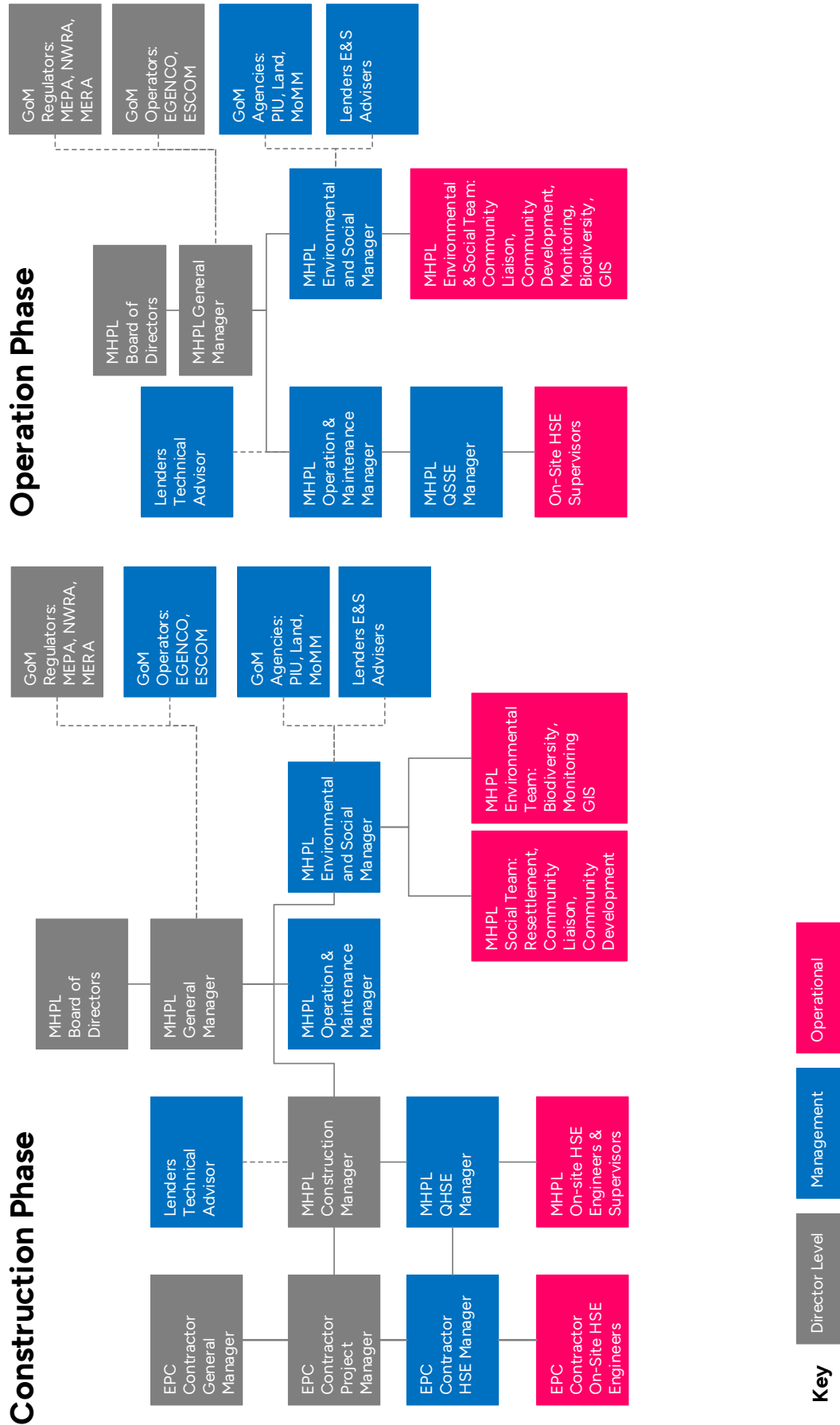
2.2.1.3 Administrative Authorities E&S Input

Several ESHS requirements are the responsibility of Administrative Authorities during the construction period. These are tagged [GC-XX] and are set out in Chapter 7 of the ESMMP.

³ XX refers to a unique numerical code given to each ESHS specification.



Figure 2-1: E&S Responsibilities of MHPL, EPC Contractors and Administrative Authorities





2.2.2 ESMMP During Operation

The ESHS requirements relevant to the operation stage of the Project are organised in Sub-Plans: these are the ESHS requirements that are relevant to the operation of the project only.

2.2.2.1 MHPL E&S Responsibilities

MHPL will be responsible and take ownership of the ESHS requirements relevant to the operation and maintenance phase of the Project facilities under MHPL's jurisdiction (See Table 2-1): Hydropower facilities, exclusive zones of the main reservoir, regulating reservoir, road from main dam to regulating dam. They are tagged [OO] in this ESMMP and are set out in Chapter 6 of the ESMMP. MHPL will establish an ESMS to define the responsibilities, practices, and resources necessary for implementing the Project ESHS requirements.

2.2.2.2 Administrative Authorities E&S input

A Governmental Agencies

Some operational ESHS requirements associated to the hydropower facilities, mostly monitoring, will also be performed by Governmental Agencies. These are tagged [GO] and are set out in Chapter 7 of the ESMMP.

B ESCOM

The 400 kV transmission line to link the main powerhouse to the Phombeya substation and the 132 kV transmission line to link the regulating dam powerhouse to the existing Tedzani-Kapichira line will be operated by ESCOM. ESCOM will take the full responsibility of the environmental & social management of the construction and operation of the two transmission lines that evacuates the power produced by the Project.

The present ESMMP addresses the environmental and social monitoring management plan for the hydropower component of the Project only. A separate ESMMP will be prepared by ESCOM to cover the E&S management of the operation of the 400kV and 132kV transmission line.

C National Roads Authority

The upgraded S137 road will be owned, maintained and operated by the National Roads Authority.

2.2.3 ESMMP During Decommissioning

E&S management actions for the decommissioning phase of the Project cannot be planned at the time of writing for the following reasons:

- Hydropower projects rely on renewable fuel which is supposed to last forever, subject to climate changes. Unlike a mining project or an oil & gas project, there is therefore no planned depletion of the resource after a number of years of exploitation. Although the reservoir capacity will eventually be reduced by sedimentation after decades, there could be solutions to adapt the hydropower production to the new conditions. Although the Power Purchase Agreement between MHPL and GoM covers the first 30 years of operation, the power production would not stop beyond these 30 years.
- Given the real lifetime of hydropower projects, there are only a few examples in the world of large hydropower projects being removed or dismantled. There are many examples of hydropower projects being upgraded (e.g. dam height increase) or water storage scheme being transformed into run-off-river scheme because the reservoir was full of sediments. In most cases, given the capital investment required for the construction of large projects, priority is given to refurbishment rather than decommissioning.
- Even if the Project had a shorter projected lifetime, it would not be feasible to identify a detailed decommissioning strategy at the time of writing. Decommissioning is subject to detailed study similar in scope to construction. Therefore, anything identified at the



construction phase would be indicative and subject to extensive change based on tailored studies carried out as part of the decommissioning scope of work.

Overall, planning E&S measures for the decommissioning phase at this stage of the project cycle would not be relevant.

2.3 Managing Changes to Project Design

The 2024 ESIA studies have assessed impacts and developed mitigation for the Project Basic Design as available in May 2024. Minor changes to the design within the ESIA study areas will not require re-assessment or approval by the lenders, subject to the EPC Contractors complying with the mitigation set out in the specifications set out in Chapters 4 and 5. However, significant changes to design will require screening, may be subject to further assessment and approval by MHPL and potentially the lenders where there are material changes. This process is described in the Management of Change Procedure (MCP) which can be found in Chapter 6.

The MCP sets out how the potential environmental and social implications of design changes beyond the 2024 ESIA scope buffer would be assessed. The assessment of the design change would aim to ensure that adequate mitigation is adopted to minimise and avoid effects where any deviations to the scheme described in the ESIA are proposed.

Potential changes can be triggered at either the detailed design stage of the Project implementation or during construction and can be initiated by various stakeholders (MHPL, Implementation Consultant, Lenders, Community or the EPC Contractor). They could include:

- Basic design refinement, after the present document has been publicly disclosed, due to detailed topographic or geotechnical information or Lenders' requirements;
- Detailed design development submitted by the Design team of the EPC Contractor in advance of the construction activities and approved by MHPL;
- Results of further field surveys (e.g. archaeology, through the Chance Finds Procedure or geotechnical surveys) and monitoring;
- Comments or concerns submitted by community;
- Changes in regulations or comments by regulatory bodies; and
- Unexpected Issues arising during construction.

Regardless of the trigger source, any potential changes in design would be formally processed through the MCP to determine the acceptability of the change from an environmental and social perspective. Any change will comply with lenders policies, local legislation and good international practice. MHPL has the overall responsibility for the management of the MCP but delegates management of the process to the Implementation Consultant.

2.4 Standards of Environmental and Social Performance

The Project's internal stakeholders (i.e. MHPL, Implementation Consultant, EPC Contractor) will comply with all norms and standards as defined in Malawi national regulations.

In particular regard must be taken for e.g.:

- Labour
- Occupational and Community Health and Safety
- Environment
- Land Acquisition and compensation
- Permit and Monitoring requirements
- Contractor management.



The Project will also comply with the environmental and social policies of Lenders, including:

- the 2018 World Bank Environmental and Social Framework,
- the 2012 IFC Performance Standards, and the World Bank Group Environmental, Safety, and Health Guidelines, and
- the IFC Good Practice Handbook Use of Security Forces: Assessing and Managing Risks and Impacts;
- The 2020 Equator Principles 4;
- The 2011 UN Guiding Principles on Business and Human Rights;
- Guidelines from the UN Specialized Agencies, including the World Health Organization, the International Labour Organization, or the Food and Agriculture Organization; and
- The Relevant EDF and SCATEC corporate requirements.



3 Summary of ESIA Impacts and Mitigations

This section summarises the Project ESIA mitigation identified for the Project to control the potential ESHS impacts of the Project.

Table 3-1 sets out the Project impacts identified and the corresponding mitigation, compensation, safety and improvement measures (MHPL commitments) which have been identified in the 2024 ESIA Report. This table forms the 'Commitment Register' for the Project. These commitments are translated into implementable terms (management action, schedules, responsibilities) in the project specific ESHS requirements set out in Chapter 4, 5 and 6 of this ESMMP. Table 3-1 provides a section reference of the individual ESHS specification which is designed to implement the 2024 ESIA mitigation measure.

The acronyms used for the timing of impact stands for:

- [C]: Main construction period, including Reservoir filling (see Table 1-1 for planned dates)
- [O]: Operation (see Table 1-1 for planned dates)

Acronyms used for the relation between commitments made in this ESMMP and measures committed in the 2024 ESIA report are:

- [M 8-N]: Measure number N committed in Chapter 8 "Impact Assessment" in the 2024 ESIA Report;
- [M 10-N]: Measure number N committed in Chapter 10 "Climate Change" in the 2024 ESIA Report;
- [M 11-N]: Measure number N committed in Chapter 11 "Cumulative Impacts" in the 2024 ESIA Report;
- ESMMP: commitment added in this ESMMP which was not specifically recommended in one of the 2024 ESIA chapters.



Table 3-1: Environmental and Social Commitments Register

Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Hydrology				
Reduction of downstream river flow due to river diversion	[M 8-001] The Shire River diversion at the start of construction will be undertaken to ensure that flow of the river downstream will not be interrupted and not be significantly reduced against baseline at all times.	C	EPC	4.7 Environmental Flow Management
Downstream River Flow Variation due to regulating reservoir operation	[M 8-002] Under normal operation, the outflow from the Regulation Reservoir will be within +/- 10% of the previous day inflow to the main reservoir.	O	MHPL	5.5 Environmental Flow
Sub-daily variations in downstream water level and river due to reservoir operation	[M 8-003] A key assumption of the ESIA is that the variation in sub-daily water level and flow downstream of Kapichira HPP is associated with the operation of Kapichira Reservoir and that any flow alteration (daily and sub-daily) generated downstream of the regulating reservoir due to the Mpatamanga HPP operation will only be felt in the reach between the regulating reservoir dam wall and Kapichira Reservoir. Any flow variations downstream of the Kapichira Reservoir are attributed to the operation of the Kapichira HPP, not to the Mpatamanga regulating reservoir operation	O	MHPL	5.5 Environmental Flow
Reduction of downstream river flow during reservoir filling	[M 8-004] During reservoir filling, 90% of incoming flow will be released downstream	O	MHPL	5.5 Environmental Flow
	[M 8-005] Any potential impacts due to reservoir filling will be minimised through Shire River flow management operations. That is: i) if in 'dry conditions' request an additional release from Kamuzu Barrage; and ii) if in 'wet conditions', advise downstream users of reduced downstream flow	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Sub-daily variations in downstream water level and river flow due to operation of the regulating reservoir with constrained hydropeaking	[M 8-006] Under normal operating conditions and with reference to the Shire River within the limits of the Majete Wildlife Reserve, the rate-of-rise and rate-of-fall of water level in the Shire River must not exceed 1 cm/minute, excluding periods of primary regulation. To be reassessed based on monitoring after 2 years	O	MHPL	5.5 Environmental Flow
	[M 8-007] The primary regulation reserve should be kept under +/-3% maximum in less than 3 minutes for the regulating reservoir	O	MHPL	5.5 Environmental Flow
	[M 8-008] During periods outside of normal operation, main reservoir and regulating reservoir water levels will be managed such that day-to-day natural variation in the Shire River downstream of the regulating reservoir is not exacerbated	O	MHPL	5.5 Environmental Flow
Risk of flooding around the reservoir due to potential backwater effect during periods with high river flow	[M 8-009] Detailed hydraulic modelling will be undertaken to quantify the incremental flood risk during extreme flood events (e.g., the Design Flood) to key infrastructure upstream of the main reservoir (e.g., Lisungwe M6 road bridge and Tedzani HPP)	O	MHPL	5.5 Environmental Flow
Risk of alteration to downstream floodplain activation due to changes in river channel morphology caused by accumulation of sediment in the main reservoir	[M 8-010] To improve understanding of floodplain activation and associated impacts, a comprehensive flood plain mapping and flood risk assessment will be undertaken prior to start of construction using detailed hydraulic models (e.g., 2D models) for the Shire River between Kapichira Reservoir and Upper Elephant Marsh for both current and predicted future river morphology (e.g., considering predicted changes to bed levels, bank levels, and planform)	C	MHPL	5.7 Downstream Floodplain
Monitoring Measures for changes in hydrology	[M 8-011] Prior to the start of reservoir filling, continuous measurement of water levels will commence (i) in the main reservoir and (ii) in the regulating reservoir, and (iii) in the Shire River downstream of the regulating reservoir at an appropriate location before the Majete WR northern fence	C	MHPL	5.5 Environmental Flow 5.16 Environmental & Social Monitoring
	[M 8-012] Prior to the start of construction, a river flow monitoring station will be established and maintained on the Shire River downstream of the regulating reservoir to enable development of an accurate stage-discharge rating curve, and annual review and update	C	MHPL	5.16 Environmental & Social Monitoring
	[M 8-013] During operation, the stability of the reservoir level and reservoir volume relationship in the main reservoir and regulating reservoir will be monitored over the operational reservoir level range to ensure that change in volume calculations are accurate. Periodic LiDAR drone survey (e.g., every 2 to 5 years) will be undertaken during periods when reservoir levels are near or at MOL	O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-014] Prior to the start of reservoir filling, an Mpatamanga climate station will be established and maintained at a suitable location at or near to the main reservoir dam such that accurate estimates of direct precipitation and open water evaporation can be made	C	MHPL	5.16 Environmental & Social Monitoring
	[M 8-015] All hydro-meteorological monitoring will be continuously logged such that – considering potential downstream impacts – inflow and outflow calculations can be made at a minimum of a 5-minute data interval. The defined monitoring requirements are for both the reservoir filling period as well as for during operation	C/O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-016] Monthly monitoring reports on all measured hydro-meteorological data will be prepared and disclosed as part of the hydrological monitoring programme (reservoir and river water levels, minimum flow release, powerhouse releases, evaporation, precipitation). The defined disclosure requirements are for both the reservoir filling period as well as for during operation	C/O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-017] An open, publicly available website will be created and maintained to disclose (i) the main reservoir inflow and regulating reservoir outflow at a minimum 5-minute data interval and (ii) non-conformities against the rate-of-fall, rate-of-rise, and the +/- 10% maximum outflow variation rules, committed in this 2024 ESIA. The defined disclosure requirements are for both the reservoir filling period as well as for during operation. Data will be reviewed and published on a monthly basis.	C/O	MHPL	5.5 Environmental Flow
Sediment Transport and Geomorphology				
Risk that accumulation of sediment in the upper part of the main reservoir inhibits the Tedzani HPP tail race outlet operation	[M 8-018] Subject to monitoring of predicted sediment deposition rates, after about 20 years of operation, a 30-day sluicing period may be undertaken as needed during the January to February flood season when bed level constraints at the M6 road bridge and water level constraints at the Tedzani HPP outlet are reached. This seasonal drawdown will be preceded by a 30-day drawdown period from 276 mASL to 273 mASL and would be followed by a 30-day refill period (to 276 mASL)	O	MHPL	5.5 Environmental Flow
	[M 8-019] Subject to monitoring of predicted sediment deposition rates, and as required, within 30 years of operation, dredging will be undertaken around the upstream end of the main reservoir near the Tedzani HPP outlet and the M6 road bridge	O	MHPL	5.5 Environmental Flow
Impacts from disposal of sediment dredged from the upper part of the main reservoir to prevent inhibiting the Tedzani HPP tail race outlet operation	[M 8-020] As applicable, a specific ESIA and Resettlement Action Plan process will be undertaken a year before the planned dredging operation to guide the dredge spoil disposal strategy and its associated impacts on water and soil pollution, land acquisition and ecosystems services	O	MHPL	5.5 Environmental Flow
Reduced sediment load downstream between the regulating reservoir and the Kapichira Reservoir	[M 8-021] A comprehensive program of additional field surveys and an in-depth study will be undertaken prior to construction to provide additional evidence to support the decision-making process of expected downstream erosion and deposition. This is expected to include, inter alia, geophysical surveys of the river and its floodplain bed (to inform the likely presence / depth of a non-erodible / poorly erodible bed layer downstream of the regulating reservoir), hydrogeological and soil moisture measurements, a systematic survey of water use / boreholes / wells, and hydrogeological modelling	C	MHPL	5.7 Downstream Floodplain



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Risk that accumulation of sediment in the upper part of the main reservoir causes a backwater effect that increases upstream flood risk at the Lisungwe M6 road bridge	[M 8-022] A more detailed study will be undertaken to confirm / revise the estimate of critical Lisungwe bed levels that give rise to an unacceptable increase in flood risk in the Lisungwe tributary, with a particular emphasis on the M6 road bridge	O	MHPL	5.5 Environmental Flow
	[M 8-023] Annual monitoring of bed levels / bathymetry will be undertaken during operation along the Lisungwe M6 road bridge reach to confirm / revise predicted trends of sediment deposition	O	MHPL	5.16 Environmental & Social Monitoring
Risk that accumulation of sediment in the upper part of the main reservoir inhibits the Tedzani HPP tail race outlet operation	[M 8-024] Monitoring of bed levels / bathymetry will be undertaken at least every five years, to be adapted in case of exceptional flood events, near to the Tedzani HPP outlet to ensure that seasonal deposition does not pose a risk to the normal operation of Tedzani HPP. If the risk is confirmed, dredging operations should be undertaken to mitigate the risk	O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-025] The monitoring of bed levels on the Lisungwe tributary and near Tedzani HPP outlet will be used to confirm or revise the nature and timing of the proposed sluicing / water level drawdown operations. Operational rules for drawdown may be revised according to the efficacy of operation and subject to water intake constraints (e.g., reduce drawdown elevation beyond 273 mASL)	O	MHPL	5.5 Environmental Flow
Reduced sediment load downstream between the regulating reservoir and the Kapichira Reservoir	[M 8-026] During operation, a risk-focused monitoring of bed levels downstream of Kapichira Reservoir will be undertaken: (i) Greater frequency / density in the reach between Kapichira Reservoir and Chikwawa Bridge (annually and after major flood events at more detailed spatial resolution) – permanent benchmarks will be defined with spacing ranging from 500 m to 1,000 m; and (ii) Reduced frequency / density in the reach between Chikwawa Bridge and Elephant Marsh (to be confirmed after impacts identified upstream Chikwawa Bridge)	O	MHPL	5.16 Environmental & Social Monitoring
Reservoir shore and river channel erosion due to rapid changes in reservoir and river water levels caused by hydropeaking, and accumulation of sediment in the main reservoir	[M 8-027] During operation, a risk-based monitoring of bank erosion / lateral migration will be undertaken: (i) Twice per year and after major flood events visual assessment of erosion / deposition of 'high risk' locations including, inter alia, Chikwawa Bridge, Shire River right bank / eastern bank upstream Chikwawa Bridge, main reservoir and regulating reservoir erosion prone bank margins, and downstream the main powerhouse tailrace; (ii) Annual assessment of erosion / deposition based on satellite imagery of reach between the regulating reservoir and Chikwawa Bridge, main reservoir and regulating reservoir bank margins, downstream the main powerhouse tailrace, and river meanders between Chikwawa Bridge and Elephant Marsh; and (iii) Additional LiDAR survey-based erosion / deposition assessment to be undertaken subject to results of annual assessment	O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-028] Regular and transparent reporting and disclosure will be undertaken of the geomorphological and groundwater assessment and associated monitoring activities (near main reservoir and downstream Kapichira Reservoir): to include documentation of how this outcome influences the environmental and social management of the Project	O	MHPL	5.16 Environmental & Social Monitoring
Groundwater				
Increase in groundwater levels around the reservoir due to reservoir impoundment, causing impacts on village boreholes	[M 8-029] Circa. 10 water level monitoring boreholes (approximately 50 m deep) will be drilled at various distances from the main reservoir Full Supply Level on both riverbanks near water supply boreholes, intersecting fault zones at depth, along the perimeter of the main reservoir, from the Mpatamanga HPP site to upstream areas near the Lisungwe tributary confluence with the Shire River and the Tedzani HPP, where settlements and water supply boreholes are located near the reservoir. Monitoring will be undertaken using pressure transducers and solid-state recording. Drilling will take place prior to reservoir filling and monitoring will continue during reservoir filling and operation	C/O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-030] Test pumping of selected water supply boreholes around the main reservoir will be undertaken prior to reservoir filling in order to obtain borehole and aquifer parameters such as yield, hydraulic conductivity, and well efficiency	C	MHPL	5.16 Environmental & Social Monitoring
Surface and Groundwater Quality				
Risk of pollution of groundwater from accidental leaks and spills of hazardous substances at construction sites	[M 8-031] Construction site pollution prevention and protection plans and measures will be developed and implemented for all worksites to ensure compliance with national emission regulations and international good practice emissions standards, including the World Bank Group General EHS Guidelines	C	EPC	4.10 Pollution Prevention and Control
Increased turbidity levels in Shire River water adjacent to, and downstream due to in-channel construction worksites.	[M 8-032] Riverbanks downstream from in channel civil works will be protected from elevated turbidity in the river using appropriate stabilisers such as sandbags, plastic liners and/or coarse rock	C	EPC	4.6 Erosion and Sedimentation Control
Increased turbidity levels in Shire River water adjacent to, and downstream to construction worksites adjacent to the river.	[M 8-033] A buffer zone of at least 50 m from the edge of the riparian zone will be established for all support activities that do not need to be in the riparian zone to protect the river from pollution sources	C	EPC	4.6 Erosion and Sedimentation Control
Increased levels of turbidity, hydrocarbons and chemicals in the Shire River water adjacent to, and downstream from worksites and temporary facilities.	[M 8-034] Construction site runoff management measures will be developed to prevent runoff from worksites transporting sediment off site and causing alteration of surface water quality	C	EPC	4.6 Erosion and Sedimentation Control
Increased levels of faecal coliforms in the Shire River water adjacent to, and downstream from worksites and temporary worker camp.	[M 8-035] Construction accommodation camps and worksites will be equipped with wastewater collection and treatment systems to ensure sanitary and domestic wastewater discharges are compliant with national emission limit values and IFC EHS guideline emission limit values	C	EPC	4.26 Camp and Accommodation
Increased levels of turbidity and floating vegetation in the river downstream from the Project due to reservoir impoundment and flooding of soils and vegetation.	[M 8-036] Trash racks will be deployed to protect the power waterway inlet and spillway gates from floating vegetation and floating booms will be deployed if necessary	C	MHPL	5.14 Reservoir Management
Supersaturation levels of TDG due to prolonged spillway operation	[M 8-037] To minimise dissolved gas supersaturation in the waters discharged from the spillway, the risk of TDG supersaturation in the plunge pool of the regulation dam will be assessed in more detail during the detailed design stage, and if necessary deflectors will be included in the design of the spillway that can reduce TDG supersaturation	C	MHPL	5.5 Environmental Flow
Risk of pollution of groundwater from accidental leaks and spills of hazardous substances at permanent facilities	[M 8-038] Contingency plans will be prepared to identify and plan means to provide households near the reservoir with potable water in the event that the groundwater they previously used is rendered non-potable by the Project	C/O	MHPL	5.14 Reservoir Management



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Increased levels of faecal coliforms in the Shire River water adjacent to, and downstream at permanent facilities	[M 8-039] Operators' village and offices will be equipped with wastewater collection and treatment systems to ensure sanitary and domestic wastewater discharges are compliant with national emission limit values and IFC EHS guideline emission limit values	C	EPC	4.2 Finalization of Design
Risk of pollution of groundwater from accidental leaks and spills of hazardous substances at permanent facilities	[M 8-040] Facilities for storage and handling of hazardous substances at the dam sites, powerhouses and substations will be equipped with pollution prevention and protection systems, clean-up plans to manage accidental spills and leaks will be prepared	C	EPC	5.1 Environmental and Social Management System
Risk of pollution of groundwater from accidental leaks and spills of hazardous substances at worksite and construction camp	[M 8-041] The quality of wastewater discharges from construction worksites will be monitored to check conformity with Malawi environmental regulations and IFC General EHS Guideline discharge limit values	C	EPC	4.11 Water Quality Monitoring
	[M 8-042] Groundwater quality at construction worksites will be monitored monthly during construction	C	EPC	4.11 Water Quality Monitoring
Increased levels of hydrocarbon, chemicals and turbidity in the Shire River adjacent to, and downstream from, construction worksites due to runoff from worksite polluted from accidental spills and leaks of hazardous substances	[M 8-043] River water quality upstream and downstream from construction worksites will be monitored monthly during construction	C	EPC	4.11 Water Quality Monitoring
	[M 8-044] Environmental performance of the EPC Contractor will be monitored to check conformity with Project standards and non-conformities will be managed through a non-conformity management process	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
Downstream river channel erosion, modification to groundwater-river water flow dynamics, ingress of river water with altered quality and alteration to groundwater quality	[M 8-045] Groundwater and Shire River water quality upstream and downstream of the main dam will be monitored for the duration of the Project operation	O	MHPL	5.16 Environmental & Social Monitoring
Risk of degraded groundwater quality due to ingress of reservoir water with altered quality caused by anaerobic biodegradation of flooded biomass	[M 8-046] Water quality of rural water supply boreholes located within 1000 m of the main reservoir Full Supply Level will be monitored quarterly during first three years of operation	O	MHPL	5.16 Environmental & Social Monitoring
Monitoring Measures for changes in reservoir quality	[M 8-047] Reservoir water quality will be monitored weekly during the reservoir filling period	C	MHPL	5.16 Environmental & Social Monitoring
	[M 8-048] Reservoir water quality will be monitored quarterly for the first 3 years of operation, and two times per year in subsequent years	O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-049] Downstream river water quality (including temperature, dissolved oxygen (and TDG supersaturation if observed at the start of operation) will be monitored at, inter alia, aquatic biomonitoring sites, quarterly for the first 3 years of operation, and 6-monthly in subsequent years	O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-050] Water quality monitoring results will be publicly disclosed on the Project website	O	MHPL	5.16 Environmental & Social Monitoring
Project-Induced In-Migration				
Project induced in-migration	[M 8-051] The Project will develop and implement an Influx Management Strategy to minimize and manage Project-induced influx during construction and operation. The strategy will be linked to local and regional development plans. Management will involve multiple stakeholders including: local, regional and national governments; communities; development partners; and MHPL	C/O	MHPL	5.6 Influx
	[M 8-052] A cut-off-date after which people settling in the project affected area would not be eligible to any compensation for involuntary resettlement will be defined, disclosed, and enforced to avoid influx of opportunistic settlers	C/O	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration
	[M 8-053] Awareness of the community leaders in villages around the reservoirs and along the S137 road will be raised before construction starts early on the risks associated with the Project's 'Local First' Employment Policy, employment opportunities and conflict arising from the distribution of the Project benefits. It will continue throughout the project	C/O	MHPL - GoM	5.6 Influx
	[M 8-054] Awareness of the community leaders in villages around the reservoirs and along the S137 road will be raised before construction starts early on the risks associated with the Project's 'Local First' Employment Policy, employment opportunities and conflict arising from the distribution of the Project benefits. It will continue throughout the project	C	EPC	4.16 Community Relationship
	[M 8-055] A recruitment policy banning any recruitment at the camp, or any of the construction or work sites, including along the road and transmission line corridors will be developed, implemented, communicated/advertised and enforced	C	EPC	4.19 Community Health and Safety
	[M 8-056] MHPL will provide the EPC with a list of persons of working age living in Project Affected Communities	C	MHPL	5.6 Influx
	[M 8-057] Regional employment centres will be established at distance from the worksites (e.g. Blantyre, Zalewa)	C	EPC	4.19 Community Health and Safety
	[M 8-058] Construction camp will be designed to accommodate all non-local workers (i.e. residing at more than 2 hours walking distance or 8km), including employees of sub-contractors working on site (i.e. 2,500 at peak)	C	EPC	4.22 Labour Management
	[M 8-059] Local workers not accommodated in the construction camp (i.e. residing at more than 2 hours walking distance or 8km) will be transported from/to collecting points along the S137 in nearby villages to/from work sites by Project's buses for each shift and on appointment base. Location of bus stops will be decided jointly with MHPL.	C	EPC	4.22 Labour Management
	[M 8-060] MHPL will develop, implement and enforce onto the EPC Supply Chain Management procedures to manage the EPC sub-contractors and suppliers that perform work or provide services directly related to core functions of the Project in a way that complies with the requirements of the 2024 ESMMP	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
[M 8-061] The EPC will implement the Supply Chain Management procedures to manage the sub-contractors and suppliers that perform work or provide services directly related to core functions of the Project in a way that complies with the MHPL requirements and procedures	C	EPC	4.1 General Framework	



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-062] A Multi-Stakeholder Forum at District, TA, and GVH levels will be developed to (i) raise awareness about the likelihood of influx and the associated potential adverse effects on community health, safety and security, access, biodiversity and land issues, including around Majete (ii) share information on project activities and results of influx monitoring; (iii) discuss and decide how MHPL could best support initiatives to discourage and control influx; (iv) coordinate and collaborate on planning, design and delivery of the selected control and development initiatives to minimize project influx, and (v) coordinate induced access and biodiversity issues, and provide support to law enforcement to monitor and check road users	C/O	MHPL	5.6 Influx
	[M 8-063] A support for the preparation and implementation of Village Level Action Plans for GVH Kaliati and GVH Feremu that consider (i) the resettlement and relocation requirements due to the land take process, and (ii) the likely influx during construction and operation, to anticipate and plan the incremental demand on services (health, education, water and sanitation) in these GVHs will be provided	C/O	MHPL	5.6 Influx
	[M 8-064] Road access to worksites will be controlled with checkpoints at selected locations. No public road access will be allowed to the regulating dam. Jurisdiction discussions will take place jointly with private security or the police and the Forestry Department to organise and implement these checkpoints at i) the S137, just after Feremu prior entering the main dam worksite, ii) the junction between the S137 and the MD-RD service road, and iii) the Kapichira to Blantyre road on the eastern bank	C	MHPL	5.6 Influx
	[M 8-065] As part of Local Procurement Policy, the EPC contractors will source an appropriate mix of locally and non-locally produced goods to allow local project benefits while reducing risk of overcrowding and price hikes for local consumers	C	EPC	4.21 Local employment and skill development
	[M 8-066] All construction workers employed by the EPC Contractors and their sub-contractors mobilized on site and resident in the accommodation camp will be provided with three meals per day, free of charge, regardless of their shift. Construction workers employed by the EPC Contractors and their sub-contractors not resident in the construction camp, including local workers, will be provided with a minimum of one meal free of charge	C	EPC	4.22 Labour Management and 4.19 Community Health and Safety
	[M 8-067] Control of access roads throughout the operation period with checkpoints will be maintained at selected key locations: (i) at the junction between the S137 and the MD-RD service road, and (ii) at the Kapichira to Blantyre road on the eastern bank	O	MHPL	5.6 Influx
	[M 8-068] The Project-induced in-migration will be monitored in collaboration with the local authorities and Police in each of the working sites' neighbouring villages, i.e. GVH Feremu and GVH Kaliati, using imagery and counting of new buildings and tracks as an indicator.	C	MHPL	5.16 Environmental & Social Monitoring
	[M 8-069] The inflation of local prices and security of supply will be monitored in the working sites' neighbouring villages, i.e. TA Kunthembwe and TA Mlauli	C/O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-070] The Project-induced in-migration will be monitored around the two reservoirs and Majete Wildlife Reserve during operation during the first five years of operation, using imagery and counting of new buildings and tracks as an indicator	O	MHPL	5.16 Environmental & Social Monitoring
Air Quality and Dust				
Dust emissions from quarry operation, construction activities and traffic along the S137	[M 8-071] The households currently residing in Chaswanthaka, at the junction between the S137 and the proposed main dam to regulating dam service road, will be permanently relocated in areas outside of a 200-m safety buffer zone from that junction and from the proposed service road	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration 5.9 Community Safety and Security
	[M 8-072] The design of the main dam to regulating dam service road will be adjusted to avoid the settlements belonging to Mpindo Village and located along the service road between the main works area and the regulating dam. A 200 m buffer between the road and each identified settlement must be implemented	C	EPC	4.2 Finalization of Design
	[M 8-073] The households residing in Mpindo Village within 200 m from the selected route for the main dam to regulating dam service road will be permanently relocated in areas outside of a 200-m safety buffer zone from that proposed service road	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration 5.9 Community Safety and Security
	[M 8-074] The buildings located in Kambalame within the reservoir area at less than 500 m from the quarries will be displaced prior to construction starts, i.e. in the Main Works RAP	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration 5.9 Community Safety and Security
	[M 8-075] Grievances from communities related to dust received during construction will be collected, managed resolved	C	MHPL	5.9 Community Safety and Security
	[M 8-076] Should a founded dust-related grievance be recorded by MHPL, the EPC will be required to propose modifications to their construction methods if possible	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
	[M 8-077] Trial blasts and a blasting risk assessment will be undertaken to design the blast so as to minimise the blast area, prevent building from cracks, and schedule the blast (e.g. delaying the blast under unfavourable wind conditions - greater than 10 m/s)	C	EPC	Site Safety Specifications (annexe 1 of Employer's OHS Requirement)
Exhaust gas emissions from project traffic	[M 8-078] Equipment and vehicles used, and construction and transport methods adopted, will be maintained to align with manufacturer standards and remain compliant with atmospheric emissions as specified in Malawi Law	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
Dust emissions from quarry operation, construction activities and traffic along the S137	[M 8-079] Dust suppression techniques will be used across exposed areas during the dry season such as (i) the regular spray of water or any other non-hazardous dust suppression agents; (ii) the reduction of vehicle speed in and near sensitive receptor areas; and (iii) the covering of loaded haulage lorries, if the need is confirmed by monitoring surveys	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
	[M 8-080] When storage, transport and handling of bulk materials are in the open air and exposed to the wind, dust abatement measures will be implemented, including one or several of the following techniques: humidification of the surface, covering of the surface, and/or vegetation of the surface	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
	[M 8-081] Regular clearing, grading and maintenance of haul routes will be undertaken	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
Exhaust gas and dust emissions from traffic along the S137 from the airport to Chaswanthaka, including during refurbishment	[M 8-082] Road sections in Chikuli and between the airport to the S138 will be surfaced to minimise risk of dust on nearby sensitive receptors	C	EPC	4.2 Finalization of Design x



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Dust emissions from quarry operation, construction activities and traffic along the S137	[M 8-083] Particulate matter (PM) and dust monitoring will be performed with portable equipment for in situ measurement to monitor air quality when needed (e.g. following complaints) during construction	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
Noise and Vibration				
Daytime and nighttime noise from construction worksites	[M 8-084] The private Isolated House downstream of the main dam and land will be permanently acquired prior to the start of the construction, i.e. in the Main Works RAP	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration 5.9 Community Safety and Security
	[M8-085] Night-time construction work will be avoided (where possible) (from 22pm to 7am, as defined by the WHO) to avoid sleep disturbances for the local residents and any wildlife	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
Daytime and nighttime noise from construction worksites	[M 8-086] Where night-time activities are required, a noise risk assessment will be undertaken as part of a broader ESHS night work risk assessment. Where noise levels are predicted to exceed WHO and IFC guidelines at nearest receptors, attenuation measures will be implemented and monitored, as feasible	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
	[M 8-087] Grievances from communities related to noise received during construction will be collected, managed and resolved	C	MHPL	5.9 Community Safety and Security
	[M 8-088] When a founded noise-related grievances are recorded by MHPL or night-time noise monitoring results show non-compliance (i.e. noise level above 45 dB at sensitive receptor location), the EPC will be required to implement appropriate mitigation measures, including installing temporary acoustic barriers at the appropriate location as feasible	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
Vibration from blasting at the quarry and from traffic	[M 8-089] The S137 road design will be adjusted to maintain a minimal distance of 3 m from the roadside to the buildings, as feasible. This safety distance must be implemented as a minimum between the road and sensitive buildings such as churches, schools and health centres	C	EPC	4.2 Finalization of Design
	[M 8-090] Appropriate blast design and loading will be used in accordance with the blasting risk assessment results.	C	EPC	Site Safety Specifications (annexe 1 of Employer's OHS Requirement)
	[M 8-091] A blasting schedule will be developed to inform the workers and the public of when and where blasts are going to occur throughout the day, including an alert system or siren that typically goes off prior to blasting	C	EPC	Site Safety Specifications (annexe 1 of Employer's OHS Requirement)
Corona noise from TL operation	[M 8-092] All buildings to be permanently resettled because they are located within the 400kV transmission line wayleave will be relocated at a minimum distance of 200m from the towers, as feasible	C	MHPL	5.8 Community Health
Vibration from blasting at the quarry	[M 8-093] Periodic blast monitoring will be performed to obtain assurance that ground vibration and air blast overpressure limits are being achieved at settlements not displaced and accommodation camp	C	EPC	Site Safety Specifications (annexe 1 of Employer's OHS Requirement)
Daytime and nighttime noise from construction worksites	[M 8-094] Regular night-time noise monitoring at sensitive receptor locations will be undertaken. Monitoring locations will include the fence of Majete WR. Frequency will be determined according to the construction schedule and night-time planned activities	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
Project noise emissions in general	[M 8-095] Noise level measurements will be performed at the operator's village, powerhouses and switchyards of both dams during commissioning, and at the northern boundary of the Majete WR to confirm compliance with WHO noise guidelines and Malawi noise level regulations	C	MHPL	5.16 Environmental & Social Monitoring
Waste				
Generation of hazardous and non-hazardous waste	[M 8-096] A waste management facility will be designed and built for the management of non-hazardous solid waste produced by all parties throughout the construction period. This may include construction of a landfill or installation of an incinerator. The design of these facilities will follow GIIP and environmental permits will be obtained	C	EPC	4.13 Waste Management
	[M 8-097] Land for waste/spoil disposal facilities will have to be located within the Project land-take area	C	EPC	4.13 Waste Management
	[M 8-098] If additional land to build waste/spoil disposal facilities is required, the land acquisition will be managed according to the land acquisition process defined in the RPF	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration
	[M 8-099] Permanent and temporary waste storage will be placed at a distance of over 100 m from any natural sensitive area (including rivers/streams), over 250 m from any socioeconomic sensitive area with the exception of waste storage areas in the accommodation camp, and on a flat impervious surface to prevent infiltrations	C	EPC	4.13 Waste Management
Generation of spoil from tunnelling and excavation activities	[M 8-100] When quality permits, excavation spoil material, such as for concrete formation, backfilling, and foundations will be reused. Excess spoil will be disposed of at designated and specially designed spoil disposal areas	C	EPC	4.8 Materials Management and Spoil Management
	[M 8-101] The main reservoir dead storage area will be the preferred option for the disposal of excess spoil. If spoil disposal areas are outside the main reservoir footprint, necessary permits from local authorities will be obtained	C	EPC	4.8 Materials Management and Spoil Management
	[M 8-102] The practice of disposing of inert spoil from road construction by side-casting will be prohibited	C	EPC	4.8 Materials Management and Spoil Management
Generation of hazardous and non-hazardous waste	[M 8-103] Waste will be segregated, stored and managed on site according to GIIP including the World Bank Group General EHS Guidelines and will follow the five-steps of the EU Waste Management Framework	C	EPC	4.13 Waste Management
	[M 8-104] The recycling/reuse of non-hazardous solid waste will be maximised, and this effort will be documented	C	EPC	4.13 Waste Management
	[M 8-105] Food waste will be composted on site, if feasible	C	EPC	4.13 Waste Management
	[M 8-106] Any meals delivered to construction workers, including local workers, regardless where they are accommodated will be made in the dining hall or dedicated eating areas in a way that minimize uncontrolled waste disposal, proliferation of pests and rodents and food contamination	C	EPC	4.13 Waste Management



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-107] Accredited third-party waste management facilities in Blantyre City will be identified for the management of waste that can be reused and recycled. These third-party facilities will be audited to ensure compliance with GIIP and E&S requirements of the environmental permit	C	EPC	4.13 Waste Management
	[M 8-108] Waste that cannot be recycled will be disposed of to a waste management facility built on-site in compliance with GIIP and E&S requirements of the environmental permit [C	EPC	4.13 Waste Management
	[M 8-109] Waste incineration will be prohibited, except for medical waste in an incinerator	C	EPC	4.13 Waste Management
	[M 8-110] Sludge resulting from the maintenance of oil separators, and any settlement ponds are considered as hazardous waste and will be collected and disposed of according to GIIP	C	EPC	4.13 Waste Management
	[M 8-111] A procedure to manage and dispose of floating wastes that accumulates in the main reservoir will be developed and implemented	O	MHPL	5.1 Environmental and Social Management System
	[M 8-112] Waste produced during the project's operation activities will be segregated, stored and disposed of according to GIIP and national regulation, and a register of waste will be maintained	O	MHPL	5.1 Environmental and Social Management System
	[M 8-113] During operation, all the necessary arrangements for transport of waste that is not managed on-site (i.e. construction phase landfill) to accredited offsite waste management facilities will be made, and a waste tracking system (waste manifests) will be developed and implemented	O	MHPL	5.1 Environmental and Social Management System
Generation of hazardous and non-hazardous waste	[M 8-114] Performance of the waste management undertaken during construction will be monitored.	C	EPC	4.13 Waste Management
Landscape & Visual Amenity				
Impact of temporary presence of infrastructures, and any associated works on landscape and visual amenity	[M 8-115] The main and regulating reservoirs' boundaries, including islands as applicable, will be physically demarcated on the ground so that vegetation can be cut by communities before reservoir impoundment. Vegetation on future islands and on Mpatamanga Ridge around quarries will not be cleared	C	EPC	4.4 Tree Cutting, Vegetation Clearing and Debris Management Plan
	[M 8-116] The project worksites and lands adjacent to it will be kept clean of debris, garbage, fugitive trash, or waste generated on-site	C	EPC	4.13 Waste Management
	[M 8-117] Economic and technical feasibility of environmentally-friendly alternatives to the use of shotcrete/concrete (e.g. vegetation, stone walls) for above-ground areas requiring consolidation (such as slope areas) will be examined and executed, as feasible.	C	EPC	4.2 Finalization of Design
	[M 8-118] Project's infrastructures, e.g. main powerhouse and switchyard, regulating dam switchyard will be painted with colours that reflect and blend with the colours of the surrounding landscape – shiny materials or pure blacks and whites will be avoided	C	EPC	4.2 Finalization of Design
	[M 8-119] Indigenous trees will be planted around the Operator's Village and other permanent facilities for visual screening, where operationally feasible (except substations due to risk of monkey intrusion)	C	EPC	4.2 Finalization of Design
	[M 8-120] All disturbed areas no longer used for the operation will be rehabilitated	C	EPC	4.5 Site Rehabilitation
	[M 8-121] Quarry restoration works will blend the bases of new slopes with the adjacent terrain to establish suitable conditions for natural regeneration and/or replanting. Physical barriers will be implemented to prevent falls from height, where required	C	EPC	4.5 Site Rehabilitation
Impact on landscape and visual amenity from light pollution from traffic, construction activities, accommodation camp, operators' village and Project's facilities	[M 8-122] A lighting strategy will be developed and implemented at each worksite, accommodation camp, Operators' Village and Projects' infrastructures (main dam, main powerhouse, regulating dam, associated switchyards and dam bridge) during construction and operation to reduce direct lights toward sensitive areas, including Majete and minimise sky glow effects	C/O	EPC / MHPL	4.2 Finalization of Design 4.3 Biodiversity & Ecology 5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
	[M 8-123] If feasible and acceptable from a security standpoint, the regulating dam, the main powerhouse and switchyards will not be lit during operation. If unfeasible, use a limited lighting according to measures provided into the lighting strategy	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
	[M 8-124] During construction and operation, night-time effects will be monitored at the Mkulumadzi Lodge 'Star-bed'	C/O	MHPL	5.16 Environmental & Social Monitoring
	[M 8-125] Should light pollution caused by the Project be observed from the Mkulumadzi Lodge, discussions with the lodge owners will be undertaken to agree a solution.	C/O	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works 5.15 Stakeholder Engagement and Grievance Redress Mechanism
Loss of Land & Restrictions on Land Use				
Impact on livelihoods of local communities from restrictions of access to the Shire River	[M 8-126] Public access to the regulating reservoir margin will be authorised on the Blantyre side between the fenced area and the exclusion zone close to the regulating dam for existing residents only. No use of the water body of the regulating reservoir will be permitted	O	MHPL	5.9 Community Safety and Security
	[M 8-127] Provision for safe access to the permitted regulating reservoir area with ramps for community and livestock, and livestock watering points through small weirs on tributaries (below the Full Supply Level) will be installed	O	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-128] Apart from the two exclusive zones (500 m from the main dam facilities, 500 m from the Tedzani tailrace), communities will be able to access the main reservoir (shore and water) and use its water as they are presently doing with the Shire River (i.e. drinking, cattle watering, domestic, fishing), provided it does not interfere with the dams' operation	O	MHPL	5.4 Phased RAPs preparation and implementation



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Project land acquisition and resulting physical and economic displacement	[M 8-129] The Project will prepare and implement phased Resettlement Action Plans covering all Project components, compliant with the IFC and the World Bank requirements on involuntary resettlement	C	MHPL and GoM	5.4 Phased RAPs preparation and implementation 6 Measures Under the Responsibility of Governmental Agencies
	[M 8-130] The Project Grievance Redress Mechanism will be used to manage land acquisition and resettlement-relate grievances from affected persons and communities.	C	MHPL and GoM	5.4 Phased RAPs preparation and implementation 6 Measures Under the Responsibility of Governmental Agencies
	[M 8-131] During the detailed design, the Project will optimise the Project land needs already defined to minimise involuntary resettlement impacts, for the transmission lines, and for the new Section of the S137 road to be constructed in Neno District so that it does not pass through the Feremu village	C	EPC	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
	[M 8-132] For physically displaced households, the Project will offer a choice between cash replacement at full replacement cost and resettlement on one of the resettlement sites in Chaswanthaka, Mpindo and Kambalame village, or assisted self-relocation in the same village or GVH with replacement housing constructed by the Project for households physically displaced in other villages	C	GoM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-133] The Project will identify replacement lands to offer a choice between in-kind and cash compensation to the displaced persons residing in the affected villages	C	GoM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-134] The Chaswanthaka School will be relocated into the new resettlement area in Chaswanthaka village	C	GoM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-135] For all the phased RAPs, the Project will provide household-level livelihood restoration measures during a 2-year period from payment of compensation, including transitional support, support to improve existing farming activities, and support to develop alternative livelihood activities. Specific livelihood restoration measures will also be implemented for vulnerable households affected by the Project land needs	C	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-136] For all the phased RAPs, the Project will provide collective (village-level) livelihood restoration measures: Farmer Field Schools and training on improved farming techniques	C	MHPL	5.4 Phased RAPs preparation and implementation
Restriction of access to terrestrial natural resources (Charcoal making)	[M 8-137] In the villages affected by the Main Reservoir and Main Works RAP, the Project will implement collective (village-level) livelihood restoration measure to support sustainable and green charcoal production (as envisaged in the National Charcoal Strategy 2021-2027)	C/O	MHPL	5.4 Phased RAPs preparation and implementation
Impact on livelihoods of local communities from restrictions of access to the Shire River	[M 8-138] In the villages affected by the Main Reservoir and Main Works RAP, the Project will implement collective (village-level) livelihood restoration measure to restore access to water for domestic and drinking purposes prior to the start of the reservoir filling	C/O	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-139] During reservoir filling, communities using the Shire River for domestic water and which are temporarily affected by altered reservoir water quality will be provided with an alternative source of drinking water	C	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-140] In the villages affected by the Main Reservoir and Main Works RAP, the Project will implement collective (village-level) livelihood restoration measure to restore livestock access to water prior to the start of the main works along the regulating dam and prior to the main reservoir filling	C	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-141] In the villages affected by the Main Reservoir and Main Works RAP, the Project will implement collective (village-level) livelihood restoration measure to support the development of small-scale irrigation	C/O	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-142] As part of measure [M 8 141], the Project will assist the affected persons impacted by the loss of livelihoods willing to develop small-scale irrigation activities in obtaining the regulators' authorisation to extract water from the main reservoir, if and as needed	O	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-143] The Project production projections will factor in a contingency extraction of 2m3/s for small-scale irrigation purposes	O	MHPL	5.14 Reservoir Management
	[M 8-144] In the villages affected by the Main Reservoir and Main Works RAP, the Project will implement collective (village-level) livelihood restoration measure to support the development of fisheries activities for affected communities around the main reservoir, including development of safe strategic accesses to the main reservoir	C:O	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-145] The Project will include in the livelihood Restoration Measure [M 8-140] training and technical assistance in the design of community development initiatives associated to reservoir fisheries at an early stage and throughout the initiation of the programme.	O	MHPL	5.4 Phased RAPs preparation and implementation
[M 8-146] As part of the Livelihood Restoration Measure [M 8 144], and if Reservoir Fisheries is confirmed to be viable through monitoring, the Project will work with local authorities to advance the competitive abilities of communities living around the main reservoir to have preferential access to potential reservoir fisheries, including possible closure to migrants for the first 10 years of fisheries development.	O	MHPL	5.4 Livelihood Restoration 5.6 Influx 5.14 Reservoir Management	
Project land acquisition and resulting physical and economic displacement	[M 8-147] For all Project land needs not yet defined at the Basic Design stage, including temporary land needs during construction, the Project will avoid or minimise involuntary resettlement impacts as much as possible	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
	[M 8-148] The selection and planning of the Biodiversity Offset Strategy to be implemented will consider potential restriction on land use for the local communities, and associated land needs. Restrictions on land use will be addressed in the Main Works RAP as necessary	C	MHPL	5.4 Phased RAPs preparation and implementation
Flooding of a public bridge and section of the S137 Road	[M 8-149] The main dam crest will be used as a public bridge to replace the bridge flooded by the main reservoir and new sections of the S137 road will be constructed to connect this new bridge to the existing non-affected section of the S137 Road	C/O	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
Impact on livelihoods of local communities from restrictions of access to the Shire River and crossing of the river constrained	[M 8-150] The Project will define and develop a Local Area Development Plan	C	MHPL	5.13 Local Area Development



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Impact on livelihoods of local communities from erosion of reservoir banks resulting in the risk of additional required land take	[M 8-151] The Land Take area of the main reservoir and main works (including regulating reservoir) will be physically demarcated on the ground at the start of the Main Works RAP and the Main Reservoir RAP, it will include the extent of the design flood (Q 1,000 N-1) and any potential erosion prone area (if extending outside the design flood extent)	O	MHPL	5.14 Reservoir Management
	[M 8-152] On the basis of further studies and the results of monitoring, appropriate compensation measures for affected households located on the Chikwawa Bridge cliff - and to a larger extent along the banks affected by the erosion process - will be defined. At least the land within a 20-metre strip along the Chikwawa cliff will be acquired in order to avoid speculation and opportunistic settlements.	O	MHPL	5.7 Downstream Floodplain
Terrestrial Vegetation and Flora				
Loss of natural and modified habitat due to vegetation clearing at project sites	[M 8-153] Construction site footprints will be clearly designated on site development plans, including areas for spoil dumps, topsoil dumps, vehicle access/turning and parking areas. They will be demarcated on the ground to limit vegetation clearance to the minimum necessary	C	EPC	4.1 General Framework
Loss of natural and modified habitat due to vegetation clearing at project sites	[M 8-154] Sites for construction facilities, spoil dumps and topsoil stockpiles will be sited on disturbed ground; or within the proposed reservoirs below the full supply level, wherever possible and will avoid all remaining portions of natural habitat including the 50 m buffer zone including riparian / streams	C	EPC	4.1 General Framework
	[M 8-155] Site clearance will be restricted to the minimum required as per demarcations on site development plans. Equipment and vehicles will be restricted to designated and marked access tracks and turning areas	C	EPC	4.1 General Framework
	[M 8-156] Prior to site clearance all large trees (e.g. baobabs) and protected trees will be marked and retained wherever possible within construction footprints (e.g. construction camps, operator village, and along transmission lines), where tree retention does not compromise on health, safety and operational requirements	C	EPC	4.1 General Framework
	[M 8-157] Construction facilities on the Neno side of the main dam within the proposed conservancy area will be fenced to prevent human access. Any facilities which are not strictly required or can be located outside of the future conservancy area will not be located in this area to maximise habitat protection	C	EPC	4.3 Biodiversity & Ecology
	[M 8-158] No vegetation clearing and no construction activities (including access tracks) will be authorized within the future conservancy area (on Neno side of the regulating reservoir) before (i) MHPL has approved the layout of all facilities and the protection measures of the adjacent areas, (ii) the vegetation clearance construction methods have been approved and the area to be cleared demarcated physically on the ground, and (iii) the protection of any trees with a dbh>30cm within 20 m of the external limit of the worksite has been implemented	C	EPC	4.3 Biodiversity & Ecology
	[M 8-159] Wayleave clearance for the 400kV line in the conservancy area (if required prior to installation of conservancy fencing) will require a specific plan to restrict and enforce access controls to prevent illegal woodland clearance	C	EPC	4.3 Biodiversity & Ecology
	[M 8-160] Vegetation clearing and earthworks operators will be trained, through documented sessions, on the sensitivity and objectives of the planned conservancy area and protection measures to be undertaken	C	EPC	4.3 Biodiversity & Ecology
	[M 8-161] Spoil material excavated from road construction, tunnelling activities and worksite foundations within the future conservation area will be transported outside of the planned conservation area without temporary disposal or storage within the footprint of the planned conservation area (except at sites designated and approved for future construction)	C	EPC	4.3 Biodiversity & Ecology
	[M 8-162] During construction (including site restoration), topsoil management will be implemented to maximise topsoil storage in designated areas, ensure its protection from wind, water runoff, and vehicle damage, and optimise its reuse in site rehabilitation and will be overseen by the contractors Environmental Officer	C	EPC	4.5 Site Rehabilitation
	[M 8-163] Terrestrial alien invasive plant monitoring, management and control measures will be implemented around target construction sites in the Project Area (including areas cleared for construction camps, work sites, transmission lines, quarries and at topsoil stockpiles) and around reservoir margins to ensure minimal spread of alien invasive species	C	EPC/MHPL	4.3 Biodiversity & Ecology
	[M 8-164] The workers' code of conduct will include provisions related to biodiversity protection (e.g. restriction on harvesting and hunting, fires) ii) prohibition on collection or purchase of charcoal or charcoal-related activities. Awareness-raising materials and sessions related to these topics will be developed to train workers	C	EPC	4.22 Labour Management
Loss of natural and modified habitat and regulating and supporting ecosystem services due to harvesting by influx of construction workers and opportunity seekers	[M 8-165] The use of existing or creation of new tracks on the west bank (Neno side) to construct the regulating dam by the EPC contractor will be prohibited with regular checks of compliance conducted by MHPL	C	EPC	4.3 Biodiversity & Ecology
	[M 8-166] The Project will allow access across the Shire River via the coffer dam and/or the regulating dam by the Majete Wildlife Reserve security staff and managers to improve security patrols around Majete WR as long as it does not interfere or conflict with the safety of construction activities	C	EPC	4.3 Biodiversity & Ecology
	[M 8-167] The Project will acquire and fence land along the entire western bank of the regulating reservoir and place under conservation to protect the area against human in-migration and loss of woodland habitat for charcoal production and to serve as the Project's offset for terrestrial habitat loss. Land acquisition and fencing will need to be initiated prior to commencement of construction with ongoing management and maintenance during operation	C	MHPL	5.12 Biodiversity
Poaching within the Majete WR, potentially exasperated by the influx of construction workers and opportunity seekers	[M 8-168] Support will be provided to the Majete WR to strengthen security surveillance and protection on the northern boundary of Majete WR to reduce risk of human access and poaching	C/O	MHPL	5.12 Biodiversity
Loss of natural and modified habitat due to vegetation clearing at resettlement sites	[M 8-169] Resettlement planning will be designed to ensure that allocation of land to resettled communities optimise retention of woodland patches and encourages community protection	C	MHPL	5.12 Biodiversity
Loss of natural and modified habitat due to vegetation clearing at project sites – including resettlement sites	[M 8-170] A Biodiversity Offset will be developed to compensate for significant adverse impacts on natural terrestrial habitats to meet no net loss requirements. The protection of a new conservancy area on the Neno side has been identified and agreed as the preferred terrestrial habitat offset option and a potential implementing partner confirmed	C	MHPL	5.12 Biodiversity
Protection of natural habitat at project sites and from influx.	[M 8-171] The boundaries of the future conservancy offset area will be fenced or alternatively demarcated physically on the ground prior the start of any site investigations and construction activities on the right bank (Neno side) to avoid risk of habitat loss prior to conservancy development and protection	C	MHPL	5.12 Biodiversity
Terrestrial Fauna (including Birds)				
Loss of natural and modified habitat and regulating and supporting ecosystem	[M 8-172] A full-time on-site Environmental Officer with relevant ecological experience and snake handling will be appointed by the EPC contractor and mobilized to oversee site clearance and ensure boundaries of designated areas are adhered to by all site staff and check and ensure compliance with all ecological related commitments on site	C	EPC	4.3 Biodiversity & Ecology



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Interference with animal movement between the Majete WR and the regulating dam site, with risks of injury or mortality	[M 8-173] The location and design of fencing and gating between Majete WR and the regulating dam to protect wildlife, workers and other people entering the construction area, will be confirmed with the Majete WR	C	MHPL	5.12 Biodiversity
	[M 8-174] A steering committee involving the EPC contractor(s) and the Majete WR management will be established and will meet regularly to engage and resolve wildlife and biodiversity related issues	C	MHPL	5.12 Biodiversity
Poaching within the Majete WR, potentially exasperated by the influx of construction workers and opportunity seekers	[M 8-175] The EPC E&S site staff will regularly inspect drainage lines and woodlands in the vicinity of the Project's construction camps and work sites to monitor whether snaring or trapping of wildlife is taking place	C	EPC	4.3 Biodiversity & Ecology
	[M 8-176] The EPC E&S site staff will be observant with respect to staff involvement in purchase or hunting of bushmeat and will record in a log any infringements by construction staff	C	EPC	4.3 Biodiversity & Ecology
Disturbance and interference with animal movement between the Majete WR and the regulating dam site, with risks of injury or mortality	[M 8-177] The presence of threatened or large wildlife species that may be at risk of impact during fencing or clearance of construction areas and which can get trapped against fences will be monitored by trained staff of DNPW or appointed expertise (such as staff from Majete Wildlife Reserve). Any incidents will be recorded in a wildlife tracker	C	EPC	4.3 Biodiversity & Ecology
	[M 8-178] During filling of the regulating reservoir, potential wildlife that may be stranded or drowned or which could pose a risk of human-wildlife conflict will be monitored by trained staff of DNPW or appointed expertise (such as staff from Majete Wildlife Reserve) who shall be equipped to assist with rescue and translocation of any animals. Any sightings or wildlife incidents, and actions taken, shall be recorded and logged in a wildlife tracker, and included in monthly reports	C	MHPL	5.12 Biodiversity
Reservoir filling causing wildlife displacement and mortality	[M 8-179] The potential for stranded animals in reservoirs (especially the regulating reservoir) will be monitored, rescued and relocated (if required) during Project operation	C	MHPL	5.12 Biodiversity
	[M 8-180] Residents living close to both the main and regulating reservoirs will be informed of potential increased risk of human conflicts wildlife (e.g. snakes) that may move upslope from the reservoir during or just after reservoir filling, and which may enter settlements, and will be notified of contact details for trained snake handlers to remove snakes if required.	C	MHPL	5.12 Biodiversity
Reservoir filling causing wildlife displacement with increased risk of human conflicts	[M 8-181] Incidences of potential increased snake encounters by local communities will be monitored during and for the first two weeks after reservoir filling. This is aimed at minimising potential harm or mortality to snakes by local residents and to increase the potential to rescue and translocate snakes to safe habitats	C	MHPL	5.12 Biodiversity 5.8 Community Health
	[M 8-182] Awareness on risks of dangerous wildlife interactions due to the new reservoirs will be raised at least three months prior to reservoir filling through education, signage and brochures distributed to community members at schools, churches, clinics and other community facilities	C	MHPL	5.12 Biodiversity 5.9 Community Safety and Security
	[M 8-183] Additional water sources for wildlife drinking in the side channels will be created within the fluctuation zone of the regulating reservoir in the planned conservancy area on the Neno side	C	MHPL	5.12 Biodiversity
Collision and electrocution of birds on transmission lines.	[M 8-184] Bird flight diverters on guard cables and anti-perching devices will be installed along the entire 132kV transmission line and in the southern half (30 km) of the 400kV Transmission line. Bird diverters will be spaced every 5 m on the 132kV line and the first 7 km of the 400kV line with spacing increased to 10 m for the next 23 km of the 400kV line. Each line spacer that may be used to separate individual conductors can substitute for one bird diverter	C	EPC	Employer's Technical Specification for transmission line
Faunal mortality from vehicle collision on project access roads	[M 8-185] Additional signage, speed calming measures and speed enforcement planned for road safety along the upgraded S137 road and the main dam to regulating dam service road will consider the requirements for collision with wildlife	C	EPC	4.2 Finalization of Design
Faunal mortality from human influx	[M 8-186] Regular checks of road users along the access roads leaving or accessing the area to the north of Majete WR will be undertaken in coordination with duly habilitated authorities to search for wildlife or other illegally harvested resources	C	MHPL	5.12 Biodiversity
Mortality or stranding of wildlife from river level fluctuations in the regulating reservoir and river downstream	[M 8-187] Wildlife use and stranding/drowning in the regulating reservoir or the fenced areas will be monitored and reported for the first two years and continued if incidents are reported in the second year. Any incidents requiring animal rescue will be notified to an appropriately experienced organisation	O	MHPL	5.12 Biodiversity
Injury or mortality of birds and mammals such as monkeys and baboons on transmission lines and at substations	[M 8-188] Post-construction bird carcass monitoring will be undertaken for the first two years of operation along selected priority areas in the southern portion of the 400 kV line and along the entire length of the 132 kV line. Community members resident along the line will be notified and requested to provide information on any carcass sightings. The location of all mortalities will be recorded, and photographs taken so that species can be confirmed later	O	MHPL	5.12 Biodiversity
Mortality or stranding of wildlife in areas of project facilities or from river level fluctuations in the regulating reservoir and river downstream	[M 8-189] Any areas in the project facilities footprint where wildlife mortalities are regularly recorded should be identified as 'hotspots' (e.g. areas with higher incidence of roadkill, drowning, bird collision with transmission lines) and assessed to determine if additional mitigation measures are viable, and implemented if appropriate	O	MHPL	5.12 Biodiversity
Aquatic Habitats & Biodiversity				
Creation of disturbed areas at the sites of temporary facilities due to physical disturbance and removal of vegetation, risk of development of alien plant species	[M 8-190] Rehabilitation of construction disturbed areas outside the reservoir full supply levels will commence as soon as possible after construction activities in specific areas are completed with the aim of reestablishing native vegetation where possible. This will include soil decompaction, seeding of native grasses and monitoring and controlling alien plant invasion will be a priority, particularly along drainage lines. Erosion control fences or berms may be required in erosion prone areas	C	EPC	4.5 Site Rehabilitation
Reservoir filling causing adverse impacts on aquatic habitat within the impounded area	[M 8-191] A Biodiversity Offset to compensate for significant adverse impacts on natural degraded aquatic habitat to meet no net loss requirements will be developed and implemented. The preferred and agreed offset option is implementation of additional community conservation areas in the Elephant Marsh. Offset actions are documented in a separate Biodiversity Action Plan	C	MHPL	5.12 Biodiversity
Opportunity for development of fisheries Creation of the reservoirs	[M 8-192] Undertake a feasibility study to investigate the viability of a reservoir fishery, and if viable, a management plan for the fishery will be developed. The study should be done in association with the Department of Fisheries	C	MHPL	5.14 Reservoir Management
Risk of proliferation of floating water weeds such as water hyacinth	[M 8-193] The presence of floating aquatic weeds in reservoirs will be monitored (commencing immediately post reservoir filling) and managed to minimise risk of further spread to downstream areas	O	MHPL	5.14 Reservoir Management 5.16 Environmental & Social Monitoring
Risk of development of aquatic pest species in the reservoirs (e.g. bilharzia, malaria vectors)	[M 8-194] An integrated aquatic biomonitoring programme covering macroinvertebrates, snails, crustacea and fish with specific attention to vectors of waterborne disease and with links to water quality and sediment monitoring will be developed and implemented starting at least one year prior to construction as a basis for determining adaptive management measures if required	O	MHPL	5.12 Biodiversity



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-195] A policy and management strategy for addressing alien invasive aquatic faunal species will be developed and monitoring implemented to confirm alien species presence and adaptive management requirements if needed. Additional community awareness materials on alien species risks will be developed in strategic locations including downstream of Kapichira Dam. This should be done in coordination with the Department of Fisheries	O	MHPL	5.14 Reservoir Management 5.16 Environmental & Social Monitoring
Potential risks to river-dependent fauna (crocodiles, hippo and wetland birds) present in the wetland habitats in northern portion of Elephant Marsh, due river channel erosion caused by reduced sediment load	[M 8-196]. Further investigations will be conducted to confirm the potential for significant adverse effects on downstream river reaches with specific focus on areas of importance for aquatic biota, water dependent species and ecosystem services (e.g. floodplain lagoons). This should include verification of hydrological drivers maintaining floodplain lagoons and project risks (as per hydrological monitoring requirements in [M 8 18])	O	MHPL	5.12 Biodiversity
Community Safety and Security				
Risk of road accident, disturbance and hindrance due to the proximity of villages and residential areas to the dam access road	[M 8-197] The new main dam to regulating dam service road will be a private road during operation. Access by local residents served by this road will be maintained	O	MHPL	5.9 Community Safety and Security
Risk of drowning of people and wildlife due to reservoir operation, rapid increase of river water level immediately downstream of the main powerhouse, and risk of injury for unauthorised people entering worksite areas	[M 8-198] The following areas will be fenced off as required: i) the area on the Blantyre side of the regulating reservoir from the main dam to 1.5 km downstream the main powerhouse and including the main switchyard, ii) the regulating dam to the northern boundary of Majete, and iii) the regulating dam switchyard	O	EPC	4.2 Finalization of Design
Risk of road accident, disturbance and hindrance due to the proximity of villages and residential areas to the dam access road	[M 8-199] Specific workplace health and safety measures will be implemented during construction for the Project mobile equipment and machinery, related to driver training, fatigue management, vehicle roadworthiness, over-speeding, and substance misuse	C	EPC	4.24 Traffic
Faunal mortality from vehicle collision on project access roads	[M 8-200] Speed limits will be set up and adapted depending on the vehicles: 30 km/h through villages and 60 km/hr for all surfaced S137 road sections	C	EPC	4.24 Traffic
Risk of road accident, disturbance and hindrance due to the proximity of villages and residential areas to the dam access road	[M 8-201] Traffic calming measures will be implemented in sensitive areas, such as schools, cemeteries, churches, recreational areas, and health centres lining the S137, including i) pedestrian crossing facilities maintained at all times and signage (e.g. overpass bridges), ii) speed bumps to slow down vehicles approaching to these areas, iii) circles to slow traffic, iv) flagmen at schools at school start and finish times, v) Improved lighting, and vi) physical barrier along the S137 when lining a recreational area, e.g. football ground	C/O	EPC	4.2 Finalization of Design
	[M 8-202] Traffic calming measures, including road narrowing features and speed bumps as feasible, for speed reduction will be implemented at village locations where high numbers of pedestrian movements are expected, i.e. on approach to Singano, Botomani, Mwasamba, and Chikuli trading centre	C/O	EPC	4.2 Finalization of Design
	[M 8-203] Check points will be developed by private security or rangers or police forces at the main MD-RD service road entrance (junction with S137) and mobile patrols will be deployed along the service road	C	MHPL	5.6 Influx
Faunal mortality from vehicle collision on project access roads	[M 8-204] Speed control measures (e.g. police, In-Vehicle Monitoring System), tracking of construction vehicles and penalties for non-compliance by staff will be implemented	C	EPC	4.24 Traffic
Risk of road accident, disturbance and hindrance due to the proximity of villages and residential areas to the dam access road	[M 8-205] All light duty and long-distance trucks will be equipped with on-board electronic speed governors and fleet monitoring systems	C	EPC	4.24 Traffic
	[M 8-206] An appropriate medical surveillance will be developed for drivers that includes screening for chronic diseases (hypertension and diabetes), substance abuse, compliance with specific physical standards and no medical exclusions that limit the ability to operate mobile equipment (e.g. epilepsy)	C	EPC	4.24 Traffic
	[M 8-207] [M 8 207] Local authorities, including police, and neighbouring communities will be involved when planning timing exceptional convoys	C	EPC	4.16 Community Relationship
	[M 8-208] Construction vehicle drivers and equipment operators will be provided with training on safe driving	C	EPC	4.24 Traffic
	[M 8-209] Awareness campaigns will be organised with local communities, including educational awareness sessions in local schools near the S137, to ensure they are aware of construction traffic related risks and how to use the road safety features	C	EPC	4.19 Community Health and Safety
Risk of road accident, disturbance and hindrance due to the proximity of villages and residential areas to the dam access road and transmission line access roads	[M 8-210] The Project will maximise the use of existing roads and tracks, especially for the access tracks required for the Transmission Lines	C	EPC	4.2 Finalization of Design
Risk of road accident, disturbance and hindrance due to the proximity of villages and residential areas to the dam access road	[M 8-211] Vehicles used during the construction period will be maintained in regular basis to ensure that safety features including headlights are in working order at all times, for instances whereby work is required to be undertaken during the first hours of darkness	C/O	EPC	4.24 Traffic
	[M 8-212] Communities affected by Project-traffic will be engaged with regard to Project-related traffic schedules and activities	C	EPC	4.16 Community Relationship
	[M 8-213] Should a founded project construction traffic-related grievance be recorded by MHPL, the EPC will be required to make the necessary arrangements if possible	C	EPC	4.16 Community Relationship
Risk of damage to buildings due to vibrations from construction activities such as blasting, and construction traffic	[M 8-214] Pre-construction surveys and documentation of existing road conditions and buildings within a 100m buffer from either side of the upgraded S137 and main dam to regulating dam service road before construction will be undertaken, except where the road is asphalted. Houses within 100 m from each side of the non-asphalted roads used by the Project construction trucks presenting cracks pre-construction will be recorded, cracks measured and photographed	C	EPC	4.1 General Framework
	[M 8-215] EPC will monitor new/increased cracks and minimize the number of allegations raised under the grievance mechanism. EPC will have to demonstrate how it will be monitored. The frequency of monitoring will be adjusted according to the Project construction traffic	C	EPC	4.1 General Framework
	[M 8-216] Damages to existing buildings caused directly and solely by the construction methods will be fixed by the Project	C	EPC	4.1 General Framework
Presence of Community Health and safety hazards at construction sites	[M 8-217] Construction site layout will adopt appropriate safety distances between onsite areas for storage and handling of hazardous substances and i.e. accommodation camp, operators' village, and offsite residential areas	C	EPC	4.25 Hazardous Material Management
	[M 8-218] Access to the construction worksites which are fenced off will be controlled to prevent unauthorised intrusion, and entry permitted only to authorised personnel who have received health and safety training/induction	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-219] Communities will be informed of the start of any construction activities at least one week in advance	C	EPC	4.16 Community Relationship



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Presence of Community Health and safety hazards at construction sites	[M 8-220] Public access to the Shire River and regulating reservoir will be forbidden in the river reach in the main work areas for safety reasons. This access restriction will be enforced by the EPC Contractor through a permanent security check in the main work area. The river reach down to the regulating dam will be authorized for confirmed residents living along the route	C	EPC	4.19 Community Health and Safety
	[M 8-221] Regular checks on compliance with access restriction to the sites, including quarries and river section in the main work areas will be performed by MHPL	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
Transmission line towers represent Community Health and safety hazards	[M 8-222] Warning signs and (barbed wire) barriers will be installed to prevent people climbing onto the 400kV and 132kV transmission lines towers to minimize the risk of electrocution and eradicate tower vandalism (theft of copper cabling and other metals)	C	EPC	4.2 Finalization of Design
Presence of Community Health and safety hazards at construction sites	[M 8-223] Education/public outreach will be organised in the neighbouring communities to prevent people approaching potentially dangerous equipment and to inform local people of access restrictions	C/O	EPC/MHPL	4.19 Community Health and Safety 5.9 Community Safety and Security
	[M 8-224] Awareness and information sessions will be developed and conducted in communities, with a specific focus on cattle herders, fishers and children and other stakeholders on access to the Project site and specific risk areas	C/O	EPC/MHPL	4.19 Community Health and Safety 5.9 Community Safety and Security
	[M 8-225] Regular community meetings on safety and construction hazards will be organised during the construction works	C	EPC	4.19 Community Health and Safety
Risk of drowning due to reservoir impoundment	[M 8-226] Access to the Shire River within the main reservoir footprint will be forbidden during the reservoir impoundment. Warning signs will be placed in villages located close to the main reservoir	C	MHPL	5.9 Community Safety and Security
Reservoir filling causing wildlife displacement with increased risk of human conflicts	[M 8-227] Communication with communities on the start and duration of the main reservoir filling, and the risk associated with and to be aware of the risk of snakes and other wildlife moving out of the reservoir during filling	C	MHPL	5.9 Community Safety and Security
Presence of flood hazards with potential to cause damage/injury at project temporary and permanent facilities	[M 8-228] A coffer dam break analysis will be carried out to include the findings into the Project design	C	EPC	Employer's Technical Specifications
Presence of flood hazards with potential to cause the coffer dam to break, resulting in downstream flooding	[M 8-229] Cofferdam design criteria for hydraulic loading will follow ICOLD guidelines	C	EPC	Employer's Technical Specifications
Presence of flood hazards with potential to cause the main dam, regulating dam or coffer dam to break, resulting in downstream flooding	[M 8-230] Emergency management measures including a dam failure or gate failure/malfunction and applicable for the main dam, regulating dam and cofferdams during construction and operation will be prepared and include flood modelling of the worst-case scenario	C	MHPL	5.9 Community Safety and Security
Security issues and conflicts between workers, job-seekers and communities, exasperated by in-migration	[M 8-231] Construction workers will be briefed on culturally appropriate behaviour for interacting with local populations to minimize disturbing communities or giving offence to local population when workers are off camp in urban centres	C	EPC	4.22 Labour Management
	[M 8-232] Coordination with the local police will be engaged to open a police station closer to project area to increase police presence, and support local traditional structures and related justice systems local traditional structures to improve community safety and security and avoid theft during the construction works and Project's operating life	C	MHPL	5.9 Community Safety and Security
Security issues and conflicts between workers, job-seekers and communities, exasperated by in-migration	[M 8-233] Coordination with the local police will be engaged to manage security issues and criminality resulting from Project-Induced In-Migration	C	EPC	5.6 Influx 5.9 Community Safety and Security
Risk of fire due to uncontrolled in-migration and development of informal spontaneous settlements	[M 8-234] Work will be done with local authorities to develop public fire and rescue capabilities	C/O	MHPL	5.9 Community Safety and Security
Risk of inappropriate behaviour of security guards towards members of local communities	[M 8-235] The Security guards will not be armed	C/O	EPC/MHPL	4.23 Occupational Health, Safety and Security 5.9 Community Safety and Security
	[M 8-236] All Security guards and police forces will be trained on appropriate conduct, engagement and appropriate use of force, human rights and the Voluntary Principles on Security and Human Rights.	C/O	MHPL	5.9 Community Safety and Security 5.10 Human Rights Due Diligence
	[M 8-237] MHPL will prepare a Human Right Assessment. It will include an assessment of the risks related to the use of security personnel, and prepare measures aligned with the Voluntary Principles on Security and Human Rights.	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-238] The Measures defined by MHPL Human right Assessment will be included in the E&S specifications for the EPC and for any contractors and security personnel. These measures will include (i) procedures to ensure that security and human rights audits are conducted before recruitment of private security providers; (ii) defining the specific training and monitoring of the security personnel on human rights; (iii) defining a procedure to cooperate with local police forces; (iv) integrating reported cases of Human Rights violations by security personnel into the Project Grievance Mechanism	C/O	MHPL	5.10 Human Rights Due Diligence
Risk of road accident, disturbance and hindrance due to increased public traffic on roads improved by the Project	[M 8-239] Awareness and education campaigns about road safety, responsible driving including the use of dam bridge and speed management, vehicle safety and pedestrian safety in communities along transport routes will be developed and implemented	O	MHPL	5.9 Community Safety and Security
	[M 8-240] Schools will be considered as a specific target so that road safety is addressed in this vulnerable group and assists in developing longer term safe driving behaviour	O	MHPL	5.9 Community Safety and Security
	[M 8-241] Local authorities' capacity and capability will be strengthened to enforce traffic regulations including the regulation of motorcycle and minibus taxis and the number of passengers that they carry, use of protective headgear and over speeding	O	MHPL	5.9 Community Safety and Security
	[M 8-242] A support for the collection and collation of data at the local and district level on road traffic accidents will be provided to evaluate trends in incidents and use this information to direct actions to risk areas or risk groups	O	MHPL	5.9 Community Safety and Security



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Presence of Community Health and safety hazards at Project's permanent facilities	[M 8-243] Control of access to energy production facility areas will be carried out by a licenced security contractor	O	MHPL	5.9 Community Safety and Security
Presence of Community Health and safety hazards at the main reservoir	[M 8-244] Safety buoys, appropriate signage (e.g. using pictographs, local languages and non-technical terminology, and be clearly visible), and shore-based rescue devices upstream the main dam will be set up and maintained to keep the public and boats from approaching areas of fast-flowing water upstream the main dam near the Tedzani tailrace [MHPL]	O	MHPL	5.9 Community Safety and Security
	[M 8-245] Communities' awareness campaign will be organised with local communities, children and river users, i.e. fishers and pirogue drivers on inherent risks associated with the main reservoir and dam's operation	O	MHPL	5.9 Community Safety and Security
	[M 8-246] An emergency procedure in case of drowning of people or injury or mortality from encounters with large mammals linked to the main reservoir and regulating reservoir operation will be prepared	O	MHPL	5.9 Community Safety and Security
Community health and safety hazards created by reservoir operation	[M 8-247] Any planned regular events such as gate openings and peaking releases, and/or exceptional events (emergencies) will be communicated to communities and relevant stakeholders as early as possible	O	MHPL	5.9 Community Safety and Security
	[M 8-248] Patrollers will be hired and posted along the main dam to main powerhouse fence to police the area to ensure local residents do not climb the fence and access the dewatered reach in the regulating reservoir	O	MHPL	5.9 Community Safety and Security
	[M 8-249] The final layout of the permanent fence on the Blantyre Side (left-bank fence) will be defined during the detailed design stage, based on an operational risk assessment	O	MHPL	5.9 Community Safety and Security
	[M 8-250] A siren will be triggered at the main dam and a light at the powerhouse prior to any peaking releases	O	MHPL	5.9 Community Safety and Security
	[M 8-251] Appropriate signage (e.g. using pictographs, local languages and non-technical terminology, and be clearly visible) will be set up and maintained to keep the public away from forbidden areas in the regulating reservoir and downstream of the regulating dam	O	MHPL	5.9 Community Safety and Security
	[M 8-252] Regular communication with affected communities will be undertaken, including ranches located close to the regulating reservoir and fishers communities on i) the ban on access to the upstream part of the regulating reservoir, ii) the peaking program and iii) safety measures. Notify them of any major changes in program, flow and water levels in advance to ensure cattle are kept out of the area	O	MHPL	5.9 Community Safety and Security
	[M 8-253] Emergency management measures covering exceptional releases (emergencies), dam failure or gate failure/malfunction and applicable and including flood modelling of the worst-case scenario for the main dam, regulating dam and cofferdams during construction and operation will be prepared	O	MHPL	5.9 Community Safety and Security
Community health and safety hazards created by the physical presence of the dam and reservoir operation	[M 8-254] An Independent Panel of Experts for dam safety will be appointed. The panel will be required to review the design and all aspects of the work, including reservoir management, erosion, flood and seismology	O	MHPL	5.9 Community Safety and Security
	[M 8-255] The emergency measures and inundation maps will be regularly shared with affected communities to provide them with information that is vital for timely warnings and evacuation routes	O	MHPL	5.9 Community Safety and Security
Presence of dam structure and reservoir represents a risk of causing reservoir triggered seismicity	[M 8-256] Sufficient seismographs will be installed to monitor seismic activities and demonstrate absence of reservoir triggered seismicity during reservoir filling and 5-first year of operation	O	MHPL	5.9 Community Safety and Security
	[M 8-257] Reservoir triggered seismicity monitoring will be monitored, and develop relevant mitigation measures in case of triggered seismicity	O	MHPL	5.16 Environmental & Social Monitoring
Risk of inappropriate behaviour of security guards towards members of local communities	[M 8-258] MHPL will monitor contractors and security personnel on their training and respect of human rights	C/O	MHPL	5.9 Community Safety and Security 5.10 Human Rights Due Diligence
Community Health				
Risk of proliferation of communicable diseases linked to arrival of non-local workforce and accommodation conditions	[M 8-259] Adequate and appropriate accommodation will be provided in the proposed construction camp for all non-local workers, including employees and any contractor workers (if and where relevant)	C	EPC	4.22 Labour Management
	[M 8-260] The standard of housing (related to both quantity and quality), management principles as well as sanitation and hygiene standards in the construction camp will align with the relevant IFC/EBRD standards (IFC, 2009) to ensure that overcrowding and increased risk of communicable diseases does not occur	C	EPC	4.26 Camp and Accommodation
	[M 8-261] A Communicable Disease Strategy that considers community measures, will be developed and implemented. It will include: (i) Information, education and communication to support health promotion and behaviour change, (ii) Tuberculosis management with integration into HIV/AIDS and STI management programmes; (iii) Vaccine preventable disease management; and (iv) Outbreak preparedness and response management	C	MHPL	5.8 Community Health
	[M 8-262] MHPL will monitor the implementation of the EPC Contractors' workers health specifications regarding communicable diseases	C	MHPL	5.8 Community Health
	[M 8-263] Develop and implement specific Health Systems Strengthening initiatives, including: (i) Support of Community Health worker/ health surveillance agents programmes in association with local health development partners and the MoH; (ii) Support of the local health facilities and DHMT in improved diagnostic and disease surveillance capabilities, (iii) Outbreak preparedness and response capabilities; and (iv) Establishing a private (MHPL, EGENCO, ESCOM, NGOs) / public (GoM) health committee (to address cumulative impacts across the broader project area , including working with traditional authorities)	C	MHPL	5.8 Community Health
Risk of proliferation of communicable diseases linked to living conditions at resettlement sites	[M 8-264] The development of the resettlement sites and replacement housing for physically displaced households will specifically include elements for communicable disease: (i) Housing design, (ii) Provision of basic services in the resettlement sites and (iii) supporting GoM to minimize influx into the resettlement host area	C	MHPL	5.8 Community Health
	[M 8-265] Initiatives of the Local Area Development Plan in areas affected by influx will consider: (i) the introduction of clean energy stoves, and (ii) Improving agricultural practices, as an additional way of reducing alteration in local air quality	C	MHPL	5.8 Community Health
Risk of proliferation of vector-related diseases linked to creation of conditions favourable for development of vectors such as mosquitos	[M 8-266] The EPC contractors will develop, execute and maintain strict environmental controls around earth works and related construction activities, and to avoid the development of suitable vector breeding sites	C	EPC	4.8 Materials Management and Spoil Management
	[M 8-267] Perform baseline entomological and cross-sectional health surveys to define and understand baseline conditions applicable to vector related diseases, schistosomiasis and other WASH-related diseases	C	MHPL	5.8 Community Health
	[M 8-268] A longitudinal monitoring of community health indicators determined by the outcomes of the baseline entomological and cross-sectional health surveys through Health Systems Strengthening initiatives, potentially through Health Surveillance Agents and community health workers, will be undertaken throughout the construction and operation period	C	MHPL	5.8 Community Health



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-269] Develop and implement an integrated malaria and vector control program that considers community measures, and includes: (i) Awareness and health promotion, (ii) Vector control, (iii) Disease management, (iv) Surveillance and monitoring	C	MHPL	5.8 Community Health
	[M 8-270] Develop and implement an integrated malaria and vector control program that considers workforce measures, and includes: (i) Awareness and health promotion, (ii) Vector control, (iii) Disease management, (iv) Surveillance and monitoring	C	EPC	4.23 Occupational Health, Safety and Security
Risk of proliferation of vector-related diseases linked to creation of conditions favourable for development of vectors such as Simulium blackflies	[M 8-271] Assess if water velocities downstream of the spillways and downstream of the regulating dam are not conducive to the breeding of Simulium blackflies	C	MHPL	5.8 Community Health
Risk of proliferation of vector-related diseases linked to creation of conditions favourable for development of vectors such as mosquitos	[M 8-272] Assess how the main reservoir increases potential mosquito breeding sites, vector densities and bite rates, and the risk of contracting malaria	C	MHPL	5.8 Community Health
Risk of proliferation of vector-related diseases linked to creation of conditions favourable for development of vectors such as Simulium blackflies	[M 8-273] Evaluate and adopt, where possible, practices that prevent the development of blackflies or expose them to unfavourable environmental conditions	C	MHPL	5.8 Community Health
Risk of proliferation of disease linked to soil-, water- and waste-related diseases	[M 8-274] In partnership with local authorities and relevant government agencies, develop and implement a WASH programme in communities around the two reservoirs, including structural (water and sanitation infrastructure) and non-structural (hygiene promotion and behaviour change activities, support to operation and maintenance) measures	C	MHPL	5.8 Community Health
	[M 8-275] If village boreholes around the main reservoir would pump reservoir water as a result of recharge from the reservoir, the Project will treat the water before use if required	C	MHPL	5.8 Community Health
	[M 8-276] Verify that the main reservoir filling and associated raising of high groundwater mark does not impair the existing or planned sanitation facilities located close to the reservoir boundaries.	C	MHPL	5.8 Community Health
	[M 8-277] As part of the Health Systems Strengthening initiatives defined in [M 8 263], Support schistosomiasis, soil transmitted helminths (STH) and cholera controls in communities and schools, considering mass drug administration	C	MHPL	5.8 Community Health
	[M 8-278] Effective and sustainable provision of safe water and appropriate sanitation facilities is planned for, included in the development of the resettlement sites	C	MHPL/GoM	5.8 Community Health
	[M 8-279] WASH services provided as part of the RLRAPs implementation to resettled persons will factor in potential localised influx and target awareness and behaviour change initiative	C	MHPL	5.8 Community Health
	[M 8-280] The Local Area Development Plan to be developed and implemented by MHPL will include initiatives to develop or improve the supply of an improved source of water supported with sanitation and hygiene interventions	C	MHPL	5.8 Community Health
	[M 8-281] Develop and implement clear food provision procedures on the supply of food for the workforce in the immediate and local. Food hygiene standards will be based on acceptable local and international (ISO 22000) food safety standards	C	EPC	4.23 Occupational Health, Safety and Security
Risk of proliferation of sexually transmitted infections, including HIV, linked to incoming workforce and Project-induced migration	[M 8-282] As part of the baseline cross-sectional health surveys defined in [M 8 267], document baseline conditions applicable to Sexually Transmitted Infections and High-Risk Sexual Practices	C	MHPL	5.8 Community Health
	[M 8-283] All non-local workers employed during construction, including from primary supply chain, will be accommodated within the construction camp(s)	C	EPC	4.22 Labour Management
	[M 8-284] Adequate services and entertainment will be developed on site to encourage workers to stay in the camps. Workers will not be allowed from leaving at night or on weekends without permission from the Camp Manager/HSSE Manager. Workers must have an acceptable reason and their intended activities will be recorded for compliance check	C	EPC	4.19 Community Health and Safety
	[M 8-285] The Workers' Code of Conduct will include provision related to prevention of sexual harassment, abuse and exploitation by both employees and contractor workers towards women in the local communities, but also towards female employees and workers, with a mandatory training on these provisions for all employees and workers. Sanctions will be in place for non-compliance	C	EPC	4.22 Labour Management
	[M 8-286] The EPC will develop and implement workplace measures that specifically target HIV and AIDS and STI and include: (i) Awareness and education campaigns, (ii) Condom distribution programmes, (iii) Screening, diagnosis and treatment, (iv) HIV and AIDS and STI policy, (v) Outbreak preparedness and response, and (vi) Surveillance and monitoring	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-287] As part of the Health Systems Strengthening initiatives defined in [M 8 263], develop and implement initiatives that specifically target HIV and AIDS and STI and include (i) Support of local health facilities in HIV and STI management in collaboration with partners, (ii) Condom distribution in collaboration with partners	C	MHPL	5.8 Community Health
	[M 8-288] As part of the Local Area Development Plan, develop activities to empower women and young girls to improve their economic resilience and make them less vulnerable to sexual exploitation and potentially gender based violence	C	MHPL	5.11 Gender-Action Plan
	[M 8-289] The EPC Contractors will use their best efforts to ensure and document that a minimum of 30% of the total working hours of all employees are worked by women	C	EPC	4.21 Local employment and skill development
Risk of disease related to food and nutrition deficiencies linked to a poor resettlement process, frozen development and delayed livelihood restoration	[M 8-290] As part of the baseline cross-sectional health surveys and monitoring defined in [M 8 267] and [M 8 268], include baseline nutritional data from children under five and women of reproductive age, and longitudinal surveillance	C	MHPL	5.8 Community Health
	[M 8-291] As part of the Health Systems Strengthening initiatives defined in [M 8 263], develop and implement initiatives associated with malnutrition, including: (i) Support of community health worker/ HSA for nutritional surveillance, diagnosis and support to care of children, (ii) Support with the provision of appropriate equipment to HSAs and health facilities, (iii) Support nutritional programmes in children in their first 1,000 days of life, and (iv) Surveillance and monitoring	C	MHPL	5.8 Community Health
Risk of disease related to food and nutrition deficiencies linked to a Project-impacts on agriculture	[M 8-292] Develop and implement education programmes in the local workforce on financial management and support of the household units, associated with increased disposable income. Target the need to support the family unit, the temporary nature of employment during construction and planning in place to adapt to previous circumstances, post-construction	C	MHPL	5.8 Community Health



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-293] The EPC will provide vocational training of the locally engaged workforce so that they develop skills that can be transferable to other potential jobs when they leave the employ of the Project at the end of construction	C	EPC	4.21 Local employment and skill development
Risk of non-communicable diseases related to alteration in lifestyle due to Project employment, increased disposable income and access to other benefits (meals and work)	[M 8-294] the EPC will develop and implement screening for Non Communicable Diseases as part of pre-deployment, recruitment and periodic medical surveillance and capacitate the workplace medical service to recognize, manage and effectively follow up chronic diseases	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-295] The EPC will develop and implement wellness programmes in the workplace that include (i) Awareness and education campaigns, (ii) Behaviour change communication, (iii) Smoking and alcohol consumption strategies, and (iv) Dietary planning for onsite catering facilities	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-296] MHPL will develop and implement community development initiatives that considers (i) Health Systems Strengthening initiatives related to Non Communicable Diseases, and (ii) the development of recreational facilities	C	MHPL	5.8 Community Health
Risk of gender-based violence and harassment	[M 8-297] As part of the Local Area Development Plan, MHPL will capacitate local women into social groupings to address gender-based violence, work with local authorities in preventative aspects, and support the creation of 'safe-houses' where victims of domestic abuse can be cared for, with links to the public health services so survivors can receive required medical support	C	MHPL	5.11 Gender-Action Plan
Project-related road accident	[M 8-298] Consider including in the community development initiatives Health Systems Strengthening actions that improves capacity to deal with trauma related cases from road traffic accidents in health centres and hospitals	C	MHPL	5.8 Community Health
Proliferation of disease linked to veterinary medicine and zoonotic diseases caused by increase in rodents/animals attracted by waste produced at Project sites	[M 8-299] Ensure appropriate location and design for the landfill site and non-hazardous waste management, including that access to any landfill sites or food composting areas are restricted to the community and waste pickers	C	EPC	4.13 Waste Management
	[M 8-300] Effective snake management procedures including awareness of risks with the clearing of bush in construction, including appropriate protective clothing, will be developed and implemented. Procedures will include training and provision of equipment for the handling of snakes (for safe removal/relocation as required), immediate first aid measures in the field and medical protocols in the workplace medical service on the initial management and referral for snake bites	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-301] Design, build and manage accommodation, camp facilities and other Project infrastructure to prevent rodents and other pests from gaining access to accommodation, kitchens and food/water storage areas [C	EPC	4.26 Camp and Accommodation
	[M 8-302] Awareness and education campaigns of environmental and personal hygiene, including discarding of waste will be conducted and documented	C	EPC	4.19 Community Health and Safety
	[M 8-303] General camp cleanliness and hygiene including effective garbage disposal and food waste management to limit the attraction of vermin, will be implemented and strictly controlled	C	EPC	4.13 Waste Management
	[M 8-304] Limit the procurement of food for the workforce from community-based vendors or support specific small businesses to supply offsite work areas but through assurance of adequate food hygiene, food preparation, management of bushmeat and disposal of food products of food waste	C	EPC	4.19 Community Health and Safety
	[M 8-305] MHPL will include zoonotic diseases into the Local Area Development Plan, specifically (i) Protocols and procedures for managing dogs, wild animal and snake bites; (ii) Outbreak preparedness programmes to include zoonotic disease	C	MHPL	5.13 Local Area Development 5.8 Community Health
	[M 8-306] MHPL will ensure that zoonotic diseases are considered in the EPC Contractors Communicable Disease plan with (i) Protocols and procedures for managing dogs, wild animal and snake bites; (ii) Occupational health programmes that include vaccinations; and (iii) Outbreak preparedness programmes to include zoonotic disease	C	MHPL	5.8 Community Health
Transmission line towers represent Community Health and safety hazards	[M 8-307] Develop and implement community development initiatives that considers (i) WASH programmes, (ii) Health Systems Strengthening opportunities to extend OneHealth initiatives, including veterinary/ animal health programmes, linkage to HSAs/ community health workers and support of snake bites in local health facilities, and (iii) Supporting local food markets in the Project area on general food hygiene, waste management	C	MHPL	5.13 Local Area Development
	[M 8-308] Regular monitoring/patrolling of the transmission line wayleaves to check on the absence of structures, and awareness raising in communities with regards to transmission wayleave land use restrictions and risks of infringing restrictions	O	ESCOM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-309] Local authorities will be engaged regularly to check that no building permits are issued nor spontaneous informal settlements are developing in the transmission line wayleaves	O	ESCOM	6 Measures Under the Responsibility of Governmental Agencies
Community health and safety risks linked to alteration to air, soil and water quality and quantity	[M 8-310] Ensure that all environmental monitoring results are communicated proactively and transparently to relevant stakeholders to manage perceptions and expectations	C/O	MHPL	5.15 Stakeholder Engagement and Grievance Redress Mechanism
Negative perceptions of Project-induced economic benefits, influencing the community's perception of well-being and quality of life	[M 8-311] Ensure a detailed and effective communication strategies to clearly communicate Project employment requirements and manage expectations on realistic extended benefits from the Project	C/O	MHPL	5.1 Environmental and Social Management System
	[M 8-312] The execution of the RAP will include psychosocial support	C/O	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration
	[M 8-313] Develop and implement community development initiatives that considers (i) Local economic development with a focus on improved quality of life and perceived well-being, (ii) Micro-finance or small business incubators potentially including a linkage programme to the Project, (iii) Vocational training of local residents, (iv) Economic empowerment of women and young girls	C/O	MHPL	5.13 Local Area Development
Workforce health requirements	[M 8-314] The Project's medical service will cater for most health-related conditions so that referral into the local public health sector is limited for work related conditions as well as for primary health conditions for the non-local workforce	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-315] The Project's workplace health service capacity will be developed proactively so the services are in place before construction initiates and that resources are not sourced from potentially vulnerable local facilities	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-316] Medical referrals from the Project will be directed towards Blantyre, or private facilities, so as not to overburden the local public health facilities	C	EPC	4.23 Occupational Health, Safety and Security
Workforce health requirements and risk of negative consequences on public sector health services	[M 8-317] Restrictions on hiring public sector staff from the health facilities in the Project area will be included in the local recruitment requirements	C	EPC	4.21 Local employment and skill development
	[M 8-318] Seek opportunities to partner with donor agencies or NGOs to improve healthcare services in the broader area. The Project must attempt to outsource the management of as many of these health programmes as possible, and only retain a supporting arm	C	MHPL	5.8 Community Health



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-319] Any proposed interventions to support various public health programmes in the Project Area, need to consider sustainability criteria (with a clear exit strategy) and must be developed with a clear memorandum of understanding with the local authorities and communities	C	MHPL	5.8 Community Health
	Cultural Heritage			
Impacts on cultural heritage elements due to Project land requirements and land acquisition	[M 8-320] The DoMM will perform a Cultural Heritage Impact Assessment for the land take areas not yet surveyed at the time of writing, in coordination with the RLRAP process (transmission lines, S137 road, other land take areas not yet defined or not yet surveyed)	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-321] All significant archaeological sites located in the main reservoir will be mapped and sampled collected. These sites may then be destroyed after the DoMM has issued a destruction permit	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-322] A Chance Find Procedure will be developed to manage potential chance finds during earthworks and construction activities. Provisions to repair or compensate damages will be included in this procedure	C	EPC	4.17 Cultural Heritage and Chance-Find Procedure
	[M 8-323] The DoMM will perform additional investigation to confirm the cemeteries and individual graves identified in the main Reservoir and main Works areas and identify appropriate replacement sites for the affected cemeteries with the participation of the affected communities	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-324] The DoMM investigations on cultural heritage will be gender-inclusive and gender sensitive, and will identify of gender differentiated element of cultural heritage affected (for instance graveyards for young infants managed by mothers only)	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-325] Authority/permit to have the grave exhumed and relocated (specifically the graveyards located in the reservoir area) will be obtained. Relatives or next of kin of the deceased individual will be searched. If locating family members or next of kin proves unsuccessful, a notice of intent will be submitted to the relevant TA along with copies to the then District Commissioner of the area where the grave is located	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-326] Before the flooding of the main reservoir, and in parallel with the Main Reservoir RPF, the DoMM will establish the new cemeteries at their new site before exhuming the remains	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-327] The DoMM will give adequate notice before the exhumation and reburial of the remains	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-328] Proper consultation with community members as well as regulatory bodies will be carried out by the DoMM prior to exhumation. Aspects to consider during the consultation are (i) how the materials should be handled, (ii) who should be involved or present during the relocation processes, (iii) what, if any, ceremonies should be performed and who should perform these, (iv) where should the features be relocated to; and (v) how they should be managed in their new location, including the purchase of items needed for ceremonies	C	DoMM	6 Measures Under the Responsibility of Governmental Agencies
	[M 8-329] MHPL will support the ceremonies necessary for the sacred site (Baobab tree) located in the main reservoir in Kambalame Village. A cow (or an equivalent symbol) will have to be supplied to the villagers to mark a final celebration for the tree and choose a new one	C	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-330] Compensation at full replacement cost and the right to salvage materials will be proposed before displacement occurs for the churches in the 400kv TL wayleave	C	MHPL	5.4 Phased RAPs preparation and implementation
	[M 8-331] The two cemeteries along the S137 will be avoided by design adjustment	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
	[M 8-332] The alternative S137 layout will be selected to avoid the mosque located within the S137 land requirement in Feremu	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
Impacts on intangible cultural heritage elements due to noise, dust and vibration during construction	[M 8-333] GIIP will be implemented to ensure the construction work does not represent any safety risks for the general public. The EPC will commit to not blocking accesses to the cemeteries and church during the construction activities as much as possible, considering the safety issues. Where existing access cannot be maintained, the provision of an alternative access route, subject to overriding health, safety, and security considerations	C	EPC	4.19 Community Health and Safety
	[M 8-334] A preconstruction survey along the S137 road and the transmission lines and within 100m of all construction sites will be carried out by the EPC. The religious buildings and cemeteries located adjacent to the construction activities will be protected from potential damages due to construction methods if needed	C	EPC	4.1 General Framework
	[M 8-335] A post-construction inspection of the condition of religious elements will be carried out by the EPC after the refurbishment of the road and throughout the Project construction period	C	EPC	4.1 General Framework
	Ecosystem Services			
Impacts on downstream irrigation and water supply caused by change in downstream river flows and sediment load	[M 8-336] Downstream Coordination Committees with the Chikwawa District authorities and community representatives will be established to discuss objectives and mechanism of the strategy options that may be selected to mitigate the incremental downstream erosion effects resulting from the Project's operation; and the associated risks	C	MHPL	5.7 Downstream Floodplain
	[M 8-337] The maximum erosion extent from Kapichira to 11km downstream of the Chikwawa Bridge will be assessed using a GIS-type mapping study coupled with geotechnical assumptions related to the equilibrium profiles of the slopes	O	MHPL	5.7 Downstream Floodplain
	[M 8-338] Pending the outcome of further investigations on Project impacts, the following mitigation measures will be considered to support the potential changes that could affect the floodplain users: i) implement a small-scale irrigation programme with agricultural support for the affected floodplain farmland, ii) assess the opportunity to develop irrigation along the right bank of the river with the SVTP canal, iii) compensate loss of land affected by bank erosion, and iv) construct a new bridge	O	MHPL	5.7 Downstream Floodplain



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-339] A monitoring of the evolution of the water table level in existing boreholes in the floodplain and the plateau will be undertaken from Kapichira to 11km downstream of the Chikwawa Bridge	O	MHPL	5.7 Downstream Floodplain
	[M 8-340] A monitoring of the frequency, duration and extent of the observed future flooding events will be undertaken from Kapichira to 11km downstream of the Chikwawa Bridge [MHPL	O	MHPL	5.7 Downstream Floodplain
Impacts on downstream fisheries caused by change in downstream river flows and sediment load	[M 8-341] Pending the outcome of further investigations on Project impacts on the Lower Shire fishery and fish and fisheries monitoring, a Lower Shire Fisheries Management Plan will be conducted to develop a sustainable fishery or aquaculture to compensate communities for reduced fish productivity	O	MHPL	5.14 Reservoir Management
Impacts on downstream fisheries caused by reservoir creation and change in water quality	[M 8-342] The Project will develop a Reservoir Fisheries Monitoring Plan and conduct additional baseline monitoring downstream of the dam. This is required to define a robust baseline to confirm potential project impacts and provide a basis for potential compensation claims by local communities	O	MHPL	5.14 Reservoir Management
Impacts on downstream fisheries caused by change in downstream river flows and sediment load	[M 8-343] Pending the outcome of further investigations of the Project on Lower Shire fisheries, the Project will develop and implement a Lower Shire River and Floodplain Monitoring Programme covering, inter alia, sediments, hydrology, water quality, fish and fisheries	O	MHPL	5.14 Reservoir Management
Impacts on charcoal production and harvesting timber products and non-timber products due to vegetation clearing	[M 8-344] Discussions with affected communities (six group villages close to the main reservoir and regulating reservoir in Blantyre District, GVH Kaliati, GVH Namputu, and GVH Mzigala; and in Neno District: GVH Feremu, GVH Nsalawatha and GVH Ngwenyama) will be triggered to define a protocol for harvesting timber products and non-timber products prior to construction starts and reservoir filling	C	MHPL	5.14 Reservoir Management
Human Rights				
Impacts on human rights due to general Project activities	[M 8-345] MHPL will finalise its Human Rights Assessment and develop a Human Rights policy as a stand-alone document and disclose it publicly on its website	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-346] Human rights will be integrated into MHPL procurement processes, through the integration of human rights requirements in the tender documents for the selection of the EPC contractors	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-347] MHPL will prepare the training material on Human Right Risks and oversight EPC's trainings on Human Rights	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-348] EPC contractors will be required to organize induction trainings to all their employees, in particular for security guards and including the importance of respecting human rights and labour rights	C	EPC	4.15 Human Rights
	[M 8-349] Training material on human rights and labour rights will be prepared and direct employees will be trained on them	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-350] GoM staff and agencies involved in the implementation of the environmental and social mitigation measures of the Project will be trained by MHPL on Human Rights	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-351] Human Rights risks and issues will be integrated into the Project Stakeholder Engagement process	C/O	MHPL	5.10 Human Rights Due Diligence
	[M 8-352] In the Project Grievance Redress Mechanism, protocols for human rights related incident response, including protecting the confidentiality of complainants, investigating allegations thoroughly, and taking appropriate action to address and prevent further incidents will be defined	C/O	MHPL	5.10 Human Rights Due Diligence
Gender-related Risks				
Gender-related risks, women's property rights, livelihoods and means of income, linked to Project land acquisition, compensation and resettlement	[M 8-353] The RPF defines measures to address gender-specific risks during the preparation and implementation of the phased RAP: these measures will be implemented to mitigate the risks on women's land tenure and livelihood security during the compensation, resettlement and livelihood restoration process	C/O	MHPL, GoM	5.11 Gender-Action Plan
Gender-related risks, women's health, safety and security, linked to presence of Project workforce and Project-induced in-migration	[M 8-354] MHPL will recruit a GBVH service provider to prepare procedures to avoid and minimise GBVH, manage potential cases of GBVH, provide support to survivors, according to good practices recommended by the IFC (IFC et al., 2020)	C	MHPL	5.11 Gender-Action Plan
	[M 8-355] The GBVH service provider will mobilise staff on-site during the duration of the construction activities, and introduce these staff members to the local communities at the start of construction	C	MHPL	5.11 Gender-Action Plan
	[M 8-356] The GBVH service provider will mobilise staff on-site during the duration of the construction activities, and introduce these staff members to the local communities at the start of construction	C	MHPL	5.11 Gender-Action Plan
Gender-related risks, women's health, safety and security, linked to presence of Project workforce inducing GBVH risks	[M 8-357] The procedures defined by the GBVH Service provider will be applied during operation	C	MHPL	5.11 Gender-Action Plan
Gender-related risks, women's health, safety and security, linked to presence of Project workforce and Project-induced in-migration	[M 8-358] Provisions regarding non-discrimination and equal opportunities will be included in MHPL HR policy and cascaded on EPC contractors and supply chain	C	MHPL	5.11 Gender-Action Plan
	[M 8359] The EPC will ensure that provisions regarding non-discrimination and equal opportunities are cascaded to and implemented by its subcontractors	C	EPC	4.1 General Framework
	[M 8-360] The recruitment strategy to be developed by the EPC Contractor in measure [M 8 55] will be a gender-sensitive and widely communicated to the local communities	C	EPC	4.21 Local employment and skill development
	[M 8-361] The EPC Contractors Occupational Health and Safety Management measures will include gender and GBVH aspects: (i) gender-separate accommodation on camp and gender-separate lockable latrines and WASH facilities that are well-lit, conveniently located and easily accessible, (ii) workers' safety committee which will include at least one trained female worker representative, (iii) all women workers have access to properly designed and fitted PPE	C	EPC	4.22 Labour Management
	[M 8-362] MHPL will train the Grievance Redress Committees on GBVH, and on potential gender-related risks for the compensation process (such as land grabbing by men or misuse of households' compensation by men)	C	MHPL	5.11 Gender-Action Plan
	[M 8-363] The Community Grievance Mechanism will channel all GBVH complaints and store them on a dedicated database. MHPL's Service Provider will be responsible for handling and solving these complaints and those collected by the EPC Contractors	C	MHPL	5.11 Gender-Action Plan t
	[M 8-364] The Workers' Grievance Mechanism will channel all GBVH complaints and store them on a dedicated database. The EPC Contractors will regularly communicate the database to the MHPL's Service Provider to handle and solve the complaints	C	EPC	4.22 Labour Management



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-365] MHPL will prepare and implement a Community Outreach Programme on GBVH, to disclose the Project's GBVH protocols and reporting processes.	C	MHPL	5.11 Gender-Action Plan
	[M 8-366] The EPC Contractors will monitor their E&S, occupational, health and safety and labour management performance in a gender-disaggregated indicators whenever possible.	C	EPC	4.22 Labour Management
	[M 8-367] The GoM PIU will recruit an independent Third-Party GBV Monitor who will report back to the PIU through quarterly reports during construction and during the first year of operation, which will be shared with the World Bank	C/O	PIU	6 Measures Under the Responsibility of Governmental Agencies
	Labour & Working Conditions			
Occupational health and safety risks for workers,	[M 8-368] General construction phase occupational health and safety management measures will be developed and implemented	C	EPC	4.23 Occupational Health, Safety and Security
Community health and safety linked community proximity to construction sites and future reservoir	[M 8-369] Construction phase hazardous substances management measures will be developed and implemented	C	EPC	4.25 Hazardous Material Management
Occupational health and safety risks for workers,	[M 8-370] Construction phase noise, dust and vibration management measures will be developed and implemented	C	EPC	4.14 Atmospheric Emissions, Dust and Noise
	[M 8-371] Construction phase fire and explosion management measures will be developed and implemented	C	EPC	Site Safety Specifications (annexe 1 of Employer's OHS Requirement)
	[M 8-372] Conduct and implement a risk assessment for natural hazards for workers during construction	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-373] General operation occupational health and safety management measures: ESMS aligned with ISO 45001 Health and Safety Plan will be developed and implemented	O	MHPL	5.1 Environmental and Social Management System
Community health and safety linked to community proximity to Project facilities and reservoirs	[M 8-374] Operation phase hazardous substances management measures will be developed and implemented	O	MHPL	5.1 Environmental and Social Management System
Occupational health and safety risks for workers,	[M 8-375] Operation phase occupational noise exposure management measures will be developed and implemented	O	MHPL	5.1 Environmental and Social Management System
Community health and safety linked to community proximity to Project facilities and reservoirs,	[M 8-376] Operation phase fire and explosion management measures in compliance with NFPA will be developed and implemented	O	MHPL	5.1 Environmental and Social Management System
Labour and working conditions, labour management Positive Impacts & Economic Benefits, employment	[M 8-377] Require that 100% of the total working hours for unskilled personnel be Malawian citizens, with priority to local residents, especially Project Affected Communities. Local is defined for EPC1 and EPC2 as Blantyre and Neno district level and EPC3 as Traditional Authority Mlauli, Symon, Phalula, and Kuthembwe level. If suitable personnel is not available, the recruitment may be extended to Blantyre, Neno, and Balaka districts. Semi-skilled and skilled personnel recruitment should prioritize Malawi citizens	C	EPC	4.21 Local employment and skill development
Labour and working conditions, labour management, recruitment	[M 8-378] MHPL will control that communication to local populations by EPCs on local employment objectives, targets and processes are gender inclusive, culturally appropriate and in line with the objectives set	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
	[M 8-379] Wide communication on local recruitment plan will be undertaken	C	EPC	4.21 Local employment and skill development
	[M 8-380] The EPC Contractors will require their Subcontractors to adhere to their Recruitment and labour management via the use of contractual clauses	C	EPC	4.1 General Framework
	[M 8-381] MHPL's HR policy and labour management principles will align with Lenders' Policies and the labour laws of Malawi	C	MHPL	5.1 Environmental and Social Management System
	[M 8-382] Provisions regarding allowance of workers' organisations and collective bargaining will be included in the MHPL HR policy	C	MHPL	5.1 Environmental and Social Management System
	[M 8-383] A workers' grievance mechanism will be implemented by each of the EPC Contractors. The workers will be informed of the existence and functioning of the grievance mechanism at the time of hiring	C	EPC	4.22 Labour Management
	[M 8-384] MHPL HR Policy and labour management principles will clearly mention that there will be no forced labour or child labour	C	MHPL	5.1 Environmental and Social Management System
	[M 8-385] A construction training programme, including technical, ESHS and GBV/SEA/SH and non-violence against vulnerable persons trainings will be implemented by each of the EPC Contractors. The programme shall be open to any personnel recruited by the EPCs and subcontractors	C	EPC	4.22 Labour Management
Presence of Community Health and safety hazards at Project's facilities	[M 8-386] Occupational Health and Safety (OHS) measures for construction will include the prevention and protection measures with regard to worker accommodation camps, food, water supply, sanitation, camp hygiene, first aid posts, medical offers, explosives and security.	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-387] Workshops, stores, explosive magazines, fuel depots and other sensitive facilities will be surrounded by high security fencing.	C	EPC	4.23 Occupational Health, Safety and Security



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
	[M 8-388] An effective security system on a 24 h/day, 7 days/ week basis at all the Works areas, including accommodation camp and operators' village will be implemented.	C	EPC	4.23 Occupational Health, Safety and Security
Labour and working conditions, occupational health and safety, workplace safety hazards	[M 8-403] Security teams to control the access to the accommodation camp and sensitive facilities / storage will be deployed	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-389] Security teams to control the access to the accommodation camp and sensitive facilities / storage will be deployed	C	EPC	4.23 Occupational Health, Safety and Security
	[M 8-390] Security teams to control the access to the operators' village and sensitive project's infrastructures / storage will be deployed	O	MHPL	5.9 Community Safety and Security
	[M 8-391] Each EPC Contractor will prepare and implement a detailed Demobilisation strategy for the end of the construction period.	C	EPC	4.22 Labour Management
Labour and working conditions, recruitment for local people and women	[M 8-392] A monitoring of the number of positions and working hours offered to local community members and to women will be conducted throughout construction	C	EPC	4.21 Local employment and skill development
Labour and working conditions, grievance mechanism	[M 8-393] A monitoring of the effectiveness of the employee grievance mechanism will be conducted on regular basis	C	EPC	4.22 Labour Management
	[M 8-394] Employee grievances will be registered and tracked.	C	EPC	4.22 Labour Management
Labour and working conditions, contractor labour management systems	[M 8-395] Audit of each EPC Contractor labour management, human resources (HR), working conditions and supply chain to check compliance with the Project's HR Policy, labour laws of Malawi, and Lenders' labour management requirements will be conducted by an independent organisation financed by MHPL	C	MHPL	5.1 Environmental and Social Management System
Positive Impacts & Economic Benefits				
Labour and working conditions, local suppliers	[M 8-396] The Project will aim at maximising the use of local suppliers (District-level, regional or national suppliers) as much as feasible.	C	MHPL	5.13 Local Area Development
Climate Change				
Reduction inflow leading to baseload production reduction in favour of peaking production	[M 10-1] During the construction, a study on cyclonic events will be undertaken to evaluate the impact of past cyclonic events on Lake Malawi's water level, assess midterm and long-term trends in cyclonic event occurrence considering climate change, understand the hydrological consequences of each event, and enhance cyclonic event risk management	C	GoM	6.9 Climate Change
	[M 10-2], Prior to the commissioning, a study will be undertaken to refine best practices for Kamuzu barrage operation, optimising water conservation annually at the Mpatamanga scheme, considering potential climate change scenarios and the latest understanding of extreme events in the area.	C	GoM	6.9 Climate Change
	[M 10-3], Initiate an international research program focusing on Lake Malawi water balance, lake level evolution and Shire River flow	C	GoM	6.9 Climate Change
	[M 10-4], Prior to the construction, a comprehensive monitoring and forecasting program for the Shire River inflow will be implemented. It will include at least the following stations (i) Liwonde, (ii) upstream of Mpatamanga, (iii) downstream of Mpatamanga (iv) upstream of the confluence between Lisungwe River and Shire River	C	MHPL	5.16 Environmental & Social Monitoring
	[M 10-5] Prior to the commissioning, a study will be conducted to create a model encompassing all existing and planned hydropower schemes on the Shire River, including Nkula, Tedzani, Mpatamanga, and Kapichara. Including energy production simulation considering each power plant specificities, demand patterns and external factors (i.e. agriculture needs)	C	GoM	6.9 Climate Change
Increase of damage to equipment and infrastructure due to extreme events (i.e. cyclones, floods, droughts)	[M 10-6] Prior to the commissioning, a climate change emergency contingency plan will be implemented. It should integrate operational procedures and equipment to manage operational challenges during floods, drought and heat waves. It will be regularly updated in response to related studies and lessons learnt from recent cyclone observations	C	MHPL	5.5 Environmental Flow
Increasing equipment failure (including transmission lines) due to high temperature and wind speed	[M 10-7] During the early stages of construction, a study will be conducted to identify the positive impact of tree presence on local air temperature and humidity, especially in the sparsely vegetated Mpatamanga area. This study will identify suitable types, locations, and planting methods for vegetation around Mpatamanga power plants, operator villages, and resettlement areas. The aim is to establish a sustainable and extensive forested or vegetated area post-construction, with growth anticipated to achieve effectiveness by 2040	C	MHPL	5.3 Detailed Design and Environmental and Social Surveillance of Construction Works
Reduction of precipitation and increased temperature may lead to a reduction of groundwater availability for communities (for domestic and agricultural uses).	[M 10-8] Prior to the construction, a study on local water use strategies will cover rainwater management for irrigation, groundwater access, and drinking water management. The study will anticipate adaptations to climate change conditions. The results of this study should be included in RPF.	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration
	[M 10-9] Prior to the construction, a study will be conducted to design adaptations resilient to climate change for irrigation and drinking water schemes from the Mpatamanga Reservoir to resettlement villages, including flexibility for future upgrades	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration
	[M 10-10] Prior to construction, a training program for farmers in resettlement villages focusing on adopting sustainable practices with local, water-efficient crops suited to a warming climate should be conducted. Additionally, provisions should be made for alternative crop supply, technical support for plantations, and ongoing monitoring efforts	C	MHPL	5.4 Resettlement, Land Acquisition and Livelihood Restoration
Cumulative Impact Assessment				
Flood, drought and generation outputs	[M 11-1] Create a joint dam operation for the dams along the Shire River (Liwonde, Nkula, Mpatamanga and Kapichira)	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Charcoal extraction and agricultural encroachment	[M 11-2] Implement catchment rehabilitation programs that includes rehabilitation and reforestation of targeted erosion hotspot areas	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Increase poaching, encroachment, and charcoal extraction.	[M 11-3] Support the enhancement of tourism and protection management of protected areas enhancement	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination



Risk / Impact	E&S Commitments	Phase	Responsibility	Reference of this ESMMP where commitments is addressed
Charcoal extraction, degradation of habitats	[M 11-4] Participate in the sustainable land use enhancement and energy source transition	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Reduction in soil productivity, extreme events and pollutants runoff.	[M 11-5] Support the implementation of conservation agriculture, farmer-managed natural regeneration and agroforestry	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Sub-optimal water management	[M 11-6] Participate in the institutional strengthening of NWRA, including a Stakeholder co-management platform for the Shire River	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Sedimentation in reservoirs, erosion	[M 11-7] Implement Payment for Ecosystem Services (PES) Lisungwe Catchment	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Overfishing	[M 11-8] Implement sustainable fisheries management plans from Chikwawa to Chiromo (i.e. the extent of the Elephant Marsh modelled in the CIA	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Proliferation of hyacinth and mimosa in Elephant Marsh	[M 11-9] Implement hyacinth and mimosa proliferation management plan in the Elephant Marsh	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Ecosystem degradation	[M 11-10] Implement of community conservation areas in the Elephant Marsh	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Environmental degradation, persistent poverty	[M 11-11] Support the harmonization of basin/catchment management measures towards ZAMCOM standards (including dam operation)	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination
Ecosystem degradation	[M 11-12] Participate in the implementation of a transboundary monitoring of EFlows releases plan	O	GoM	6.10 Watershed, Transboundary and Other Projects Coordination



4 Measures Under the Responsibility of the EPC Contractors

This section outlines the ESHS requirements that must be adopted by all EPC Contractors employed to deliver the Project. In conjunction with the obligations defined under the Contract, the EPC Contractors will plan, execute and document construction works pursuant to the ESHS requirements set out in this Chapter 4 of the ESMMP.

4.1 General Framework

4.1.1 Applicable Policies and Standards

4.1.1.1 Regulations and Permits

[CC- 1] The Contractor will comply with all national, regional and local government laws and regulations applicable to the Project and to its Works, and specifically the environmental, social, health and safety (ESHS) laws and regulations.

[CC- 2] The Contractor will comply with all international conventions, including ILO conventions, ratified by Malawi and applicable to the Project.

[CC- 3] For that purpose, the Contractor will identify all international conventions ratified by Malawi, national, regional and local government laws and regulations applicable to the Project and to its Works, and specifically the environmental, social, health and safety (ESHS) laws and regulations. The Contractor must identify all international conventions regulations ratified by Malawi in relation to the protection of the environment (water, air, soils, noise, vegetation, fauna, flora, waste, groundwater) and the protection of people (labour law, indigenous populations, standards on occupational health and safety, other).

[CC- 4] The Contractor will identify all the permits, licenses, authorizations, certificates, approvals or registrations required by any Governmental Authority to perform the Works. For each permit, the Contractor will detail the name of the organization in charge, the application process and means of compliance deployed to obtain the permit, and the timeline for obtaining the permit. Permitting will be integrated into the global CMP and project planning.

[CC- 5] The Contractor will submit the Legal and Permitting Analysis to the Employer for approval. The Contractor will subsequently send to the Employer, prior to the start of an activity requiring a permit, the said permit obtained from authorities.

4.1.1.2 ESHS Standards

[CC- 6] The Contractor will ensure that their activities respect the following five (5) texts which invite companies to adopt, support and apply in their sphere of influence a set of fundamental values in the areas of human rights, labor and environmental standards, and anti-corruption:

- Universal Declaration of Human Rights,
- International Labour Organization Declaration on Fundamental Principles and Rights at Work,
- Rio Declaration on Environment and Development,
- United Nations Convention against Corruption,
- Equator Principles.

[CC- 7] The Contractor will, in particular, implement on the Project the following values and principles:



- Promote and respect the protection of international human rights law,
- Respect freedom of association and recognize the right to collective bargaining,
- Fight against all forms of forced or compulsory labor,
- Treat employees with respect and dignity,
- Condemn harassment of any kind,
- Enforce the confidentiality of employee information,
- Prohibit child labor,
- Prohibit hidden work,
- Apply the principle of equal opportunity by valuing diversity,
- Do not practice any ethnic, racial, religious or gender discrimination, including in recruitment,
- Ensure a quality social dialogue between employees, their representatives and management,
- Ensure the health and safety of its employees,
- Respect and preserve the environment,
- Promote the development and dissemination of environmentally friendly technologies,
- Fight corruption in all its forms, including extortion and bribery.

[CC- 8] The Contractor will ensure each executed obligation under this Section 4 complies with the Lender's ESHS policies and standards listed below:

- The IFC Performance Standards for Environmental and Social Sustainability of January 1, 2012 and World Bank Guidelines (Environmental and Social Framework-2018), and in particular (but not limited to):
 - IFC Performance Standard and World Bank ESS 2: Workforce and Working Conditions
 - IFC Performance Standard and World Bank ESS 3: Rational Use of Resources and Pollution Prevention
 - IFC Performance Standard and World Bank ESS 4: Community Health, Safety and Security
 - IFC Performance Standard and World Bank ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
 - IFC Performance Standard and World Bank ESS 8: Cultural Heritage
 - World Bank ESS 10: Stakeholder consultation and information dissemination
- The World Bank Group's Environmental, Health and Safety (EHS) guidelines, including, but not limited to, the following guides:
 - WBG EHS General Guidelines (2007);
 - Guidelines on Electric Power and Transmission (2007);
 - Guidelines on Construction Materials Extraction (2007);
 - Guidelines on Water and Sanitation (2007);
 - Guidelines on Waste Management Facilities (2007),
 - Workers Accommodation: Processes and Standards (IFC and EBRD, 2009);
 - A Handbook for Addressing Project-induced In-Migration (IFC, 2009)
 - Managing Contractor ES Performance (IFC, 2018)
 - Environmental, Health and Safety approaches for Hydropower (IFC, 2018).
 - Good practice handbook, Use of security forces: assessing and managing risks and impacts (IFC, 2017)
- The WHO (World Health Organization) guideline values for drinking water;
- ILO (International Labour Organization) conventions ratified by Malawi as of the date of the offer (available on the ILO website), see list included in the ESIA of the Project.



[CC- 9] The following documents are the standards good industry practices and guidelines that the Contractor shall comply with in matters related to Health and safety:

- Occupational Safety, Health and Welfare Act of Malawi
- MPAT-C-CW-II.VII.07.01.91 - Construction Camp and Facilities
- Performance Standards on Social & Environmental Sustainability. International Finance Corporation, January 1, 2012, Washington DC
- Workers' accommodation: Process and Standards. International Finance Corporation
- World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) Project specific Environmental and Social Impact Assessment, Environmental and Social Management Plan, Monitoring Program, Authority Permits as applicable
- The UN Global Compact's ten principles on human rights, labour standards, the environment and corruption
- ILO R115, Workers' Housing Recommendation, 1961 (No. 115)
- ILO Code of Practice, Safety and Health in Construction, 2022 Edition
- Malawi's environmental, labour, occupational health, water, waste management, hazardous waste, forest, gender, conservation, cultural resources, forest, energy and other regulations as required by the Government of Malawi;
- Hydropower industry good international industry practice (GIIP) as described in the IFC Good Practice Note on Environmental, Health and Safety Approaches for Hydropower Projects (March 2018),
- Occupational Health and Safety Management Systems – Requirements with guidance for use. ISO 45001:2018, International Organization for Standardization, Geneva.
- Environmental management systems – Requirements with guidance for use. ISO 14001:2015, International Organization for Standardization, Geneva
- Policy on Social and Environmental Sustainability. International Finance Corporation, January 1, 2012, Washington DC
- British Tunnelling Society – Specification for Tunnelling – 4th Edition
- National Fire Protection Association, All applicable Standards
- International Labour Organization Declaration on Fundamental Principles and Rights at Work,

4.1.2 Contractor's Environment & Social Management Plan: C-ESMP

4.1.2.1 Structure & Language

[CC- 10] The Contractor prepares and ensures prior validation by the Employer, implementation and regular update of a Construction Environmental and Social Management and Monitoring Plan (C-ESMP).

[CC- 11] The C-ESMP represent the unique reference document in which the Contractor defines in detail all organizational and technical provisions implemented to satisfy the obligations of the Employer ESHS Requirements.

[CC- 12] The C-ESMP will comprise of four parts: Part 1- Environmental and Social Organisation; Part 2-Environmental and Social Protection; Part 3- Environmental and Social Procedures; Part 4- Environmental and Social Monitoring.

[CC- 13] Unless agreed otherwise by the Employer, the C-ESMP is written in the language of communication defined in the Conditions of Contract.

[CC- 14] The C-ESMP covers the entire period from the Contract Agreement signature date to the date of issue of the Performance Certificate by the Employer.

A Part 1- Environmental and Social Organization



[CC- 15] Part 1: Environmental and Social Organisation, is an umbrella document which includes the Contractor's Environmental and Social Management System documentation:

- ESHS Policy,
- Personnel organogram with reporting lines,
- Personnel roles and responsibilities,
- Resource mobilization,
- ESHS Induction and Training Programme,
- Zone of Influence and Project Working Areas,
- Document Maps,
- Photo Cataloguing Procedure,
- Inspection checklists,
- Inspection and auditing schedules,
- ESHS Incident Reporting and Corrective Action Plan,
- ESHS Control, Monitoring and Measuring Plan
- Supply chain management plan,
- Change Management Procedure.

B Part 2- Pre-Construction Survey and Environmental & Social Protection

[CC- 16] Part 2: Pre-Construction Survey and Site Environmental and Social Protection, is a site-specific overview of the identified impacts generated by the Project and the mitigation measures developed and implemented to manage these. It includes the Environmental and Social Impact and Risk Management Plans: Accurate delineation of site on 1/5 000e topographical map relating the location of works and storage areas and access roads; sensitive locations and areas of concern (e.g. graveyards, watercourse); summary of potential adverse effects on local community and natural environment; proposed mitigation measures; and reinstatement or rehabilitation measures and schedule for the specific site.

C Part 3- Environmental and Social Sub-Plans and Procedures

[CC- 17] Part 3: Environmental and Social plans and procedures, comprises specific plans and procedures that describe exactly how E&S issues are to be controlled, managed and reported on. The Contractor will prepare and implement E&S procedures detailing, for each of the aspects considered, the environmental best practices that it will implement to eliminate or reduce potential impacts on the natural or human environment resulting from the Works. The Contractor's E&S performance will be evaluated based on its capacity to implement the measures detailed in the procedures and the results obtained.

[CC- 18] Each Environmental and Social plan and procedure in Part 3 will include as a minimum: (i) Cross references to applicable legislation and Lender's standards and guidelines, (ii) Roles and responsibilities, (iii) Cross reference to other procedures, (iv) Identification of construction activities with potential risks in the field of concern, (v) Description of all or some of the mitigation measures proposed in Part 2 "Environmental and Social Protection", (vi) Implementation, monitoring and adaptive management process, (vii) Technical description or measurement / monitoring methods, (viii) Timeframe.

D Part 4- Environmental and Social Monitoring Plan

[CC- 19] Part 4: Environmental and Social Monitoring Plan objective are to verify that: (i) The physical environment is not affected by the project and even if discharges/emissions exist, the measured/observed values for indicators monitored at reference stations remain below target reference values ; (ii) The impacts induced by the modifications of the physical environment do not cause significant nuisance to the population neighbouring the project (noise, dust, availability/quality of water...); (iii) Ecosystems are functioning normally, and sensitive populations are not significantly affected by the project and the work; and (iv) The measures implemented sufficiently reduce the impacts on the biophysical environment.



[CC- 20] Part 4: Environmental and Social Monitoring Plan will describe in detail all aspects of the monitoring, including details on:

- Monitoring organization with details on the daily supervisions, site inspections, site visits, and audits planned by the Contractor to ensure ESHS performance is achieved.
- Team and resources dedicated to the ESHS monitoring.
- Precise location of environmental monitoring measurement points (water, air, noise) (GPS coordinates and chosen network that must match requirements in the ESHS requirements).
- The parameters and frequency monitored for each measurement must match requirements in the ESHS requirements.
- The equipment used to carry out the environmental monitoring measurements or, failing that, the external laboratories that will be asked to provide the data.

[CC- 21] To meet the above objectives, the Part 4: Environmental and Social Monitoring Plan will include:

- Occupational health, safety, security and worker’s environment. Refer to “Health Safety Security and Worker’s Environment Requirements” ref. [6].
- Human resources, including local employment, women and disabled person employment, and employee grievances reporting. Refer to “Labour and human resources requirements” ref. [8].
- Environmental and social aspects (refer to “E&S Requirements” ref. [7]) including but not limited to:
 - Respect of Working Areas boundaries.
 - Drinking water, sewage water and drainage water quality.
 - Air quality (particulate emissions) and noise near access roads and in sensitive areas (residential areas close to access roads or the construction site) and therefore potentially impacted by the construction site; in Working Areas likely to accidentally release toxic gases and vapours or impacted by high levels of dust.
 - Hazardous and non-hazardous waste
 - Biodiversity: clearing and earthworks activities protection of trees, plants, protected zones, number of animals rescued on the construction site (and their identification, location of the release area), documentation of any negative impacts (mortality for example) on biodiversity, tree nursery monitoring, biodiversity awareness raising, site rehabilitation activities
 - Erosion and sedimentation control, quarries and borrow area management, materials and earthworks management plan
 - GHG emissions and carbon footprint
 - Community relations activities, community health and safety activities, local content and procurement performance, project-induced in-migration management, and cultural heritage management plan.
 - The Contractor will monitor their ESHS performance using a series of indicators that will be agreed upon with the Employer prior to the start of the construction. The indicators will be gender-disaggregated whenever possible.

4.1.2.2 Submission, Approval and Revision

[CC- 22] The Contractor shall submit the plans and sub-plans at the required dates specified in Table 4-1, in order to have the C-ESMP inclusive of all the plans non-objected by the Employer not less than 120 calendar days prior to the mobilisation to the Site.

[CC- 23] The Employer shall provide comments to the Contractor within 20 calendar days after receiving the plans. The Contractor shall submit the revised plans or C-ESMP, integrating the Employer comments, to the Employer for review within 20 calendar days after receiving the Employer comments.



[CC- 24] No construction activity for the Works shall commence prior to the C-ESMP being non-objected except as authorised by the Employer. The commencement of Works in each Working Area shall be authorised by the Employer only after delivery of the E&S pre-construction surveys.

[CC- 25] During the execution of the works, whenever instructed by the Employer, the C-ESMP or any sub-plans will be complemented by addendums or updated completely by the Contractor if changes are too significant and reissued to the Employer. The revised version shall highlight the new elements incorporated in the document

Table 4-1: Timeframe for submission of Contractor plans

Document	Submission 30 calendar days after Contract Award	Submission 60 calendar days after Contract Award	Submission not less than 120 calendar days prior to Site Mobilization
C-ESMP			
ESHS Organization (policies, organigram, training program, inspection, incident and non-conformity procedures, subcontractor control, etc.)	x		
ESHS monitoring plan		x	
Complete C-ESMP (inclusive of organisation, monitoring and all plans below) in a final version			x
ESHS plans and procedures			
HSSE Program	x		
Working Areas siting plan		x	
Pioneer camp management plan	x		
Construction camp management plan		x	
Biodiversity management plan	x		
Tree cutting, vegetation clearing and debris management plan		x	
Site rehabilitation plan		x	
Erosion and sedimentation control plan		x	
Materials and earthworks management plan		x	
Quarries and borrow area management plan		x	
Pollution prevention and control plan	x		
Water quality monitoring plan		x	
Waste management plan	x		
Lifecycle impact management and carbon footprint reduction plan		x	
Air quality and emission management plan		x	
Noise and vibration management plan		x	
Community relation plan		x	
Cultural heritage management plan		x	
Local content and procurement plan	x		
Recruitment plan	x		



Document	Submission 30 calendar days after Contract Award	Submission 60 calendar days after Contract Award	Submission not less than 120 calendar days prior to Site Mobilization
Labor management plan		x	

4.1.3 Organisational Capacity and Personnel

4.1.3.1 Personnel

[CC- 26] The Contractor shall set up a team to implement the overall ESHS requirements. The human resources requirements specified hereafter are the minimum resources required for ESHS management by the Contractor. The staffing levels will be consistent with regulatory, Employer and Lender requirements.

[CC- 27] This team shall be composed of a minimum of the following:

- An ESHS manager, who will be responsible for managing the different ESHS Team members from the Environmental and social (E&S), Occupational health, safety, and working environment (HSSE) and Human resources (HR) teams.
- Three teams: E&S Team, HSSE Team and HR team, as specified below.

[CC- 28] All these team members shall work in close coordination with each other, organising weekly coordination meetings and a common ESHS reporting.

A E&S Team

[CC- 29] The E&S Team shall be managed by an E&S manager, who will be responsible for deploying the site E&S impact mitigation measures. The E&S manager shall, amongst other items: (i) Be able to speak, read and write English fluently, (ii) Hold a relevant University degree and significant experience of at least 10 years in designing and monitoring the implementation of E&S aspects on similar Projects, (iii) have previous experience in working on Lender financed projects, (iv) Be permanently based at Site for the full duration of the Works, (v) Have the authority to suspend Works when necessary, and allocate all resources, Personnel and Equipment required to take any corrective actions, (vi) Maintain close communication with the Employer’s ESHS Team.

[CC- 30] The E&S manager shall be assisted by a Social Manager and an Environmental Manager.

[CC- 31] The Social manager will:

- Permanently be based at Site for the full duration of the Works in charge of managing community relationships and grievances in relation to the construction works, liaising with supply and purchase services to implement the local content strategy, liaising with the Employer and the Contractor HR Team to implement the local recruitment strategy, managing social influxes in the site surrounding, coordinating the chance-find procedure with the archaeologist and site manager, implementing the community health and safety actions.
- Coordinate a team of stakeholder and community relations officers with at least two persons (one male and one female), more if deemed necessary by the Contractor. This team will be working with local communities, local stakeholders, administrative authorities, and representatives of economic activities located within one-hour travel from the Site.
- Liaise closely with the Employer’s Community Relations team and be responsible for resolving community grievances in a timely manner where the Contractor is responsible;
- Be fluent in Chichewa and English.
- Appoint and coordinate the services of an Archaeologist permanently based at Site for a duration limited to the construction activities involving earthworks and levelling to: (i) train the relevant Contractor’s Personnel on the Chance Finds Procedure, (ii) perform pre-



construction surveys (iii) use their professional judgement and experience to determine where, and to what depth, they would need to be present to observe the works, (iv) Intervene when chance finds are discovered, (v) Apply and report the Chance Finds Procedure, (vi) Provide a watching brief whenever top soil is removed.

[CC- 32] The Contractor shall ensure relevant administrations and local authorities are informed of the existence of the Social manager when required and provide them with the contact details.

[CC- 33] An Environmental manager who will:

- Be responsible for ensuring the application of the environmental protection measures on the construction site (on biodiversity, air emissions, waste, erosion, etc.), supervising the regular monitoring of air, water and soil samples.
- Coordinate:
 - One or more full-time on-site Environmental Officer(s) with relevant ecological experience to perform various activities (biodiversity management and awareness-raising, vegetation clearing, earthworks, topsoil storage supervision, erosion control, invasive alien species management, air, noise and vibrations management, waste management, water quality monitoring, site rehabilitation, etc.).
 - One or more laboratory technician(s) for the operation of the on-site water quality laboratory.
 - One or more nursery officers, to manage the flora species to be grown in the nursery and the revegetation activities.
 - A Life cycle assessment (LCA) specialist to assess global-scale impacts from the project construction (GHG, resource use, water footprint...) and be part of the design team to include avoidance and mitigation leverage.

B HSSE Team

[CC- 34] The organisation shall include an HSSE Manager (to report to the EPC Contractor's Project Director or equivalent person accountable for HSSE) and support functions to execute the Contractor's HSSE Program effectively.

[CC- 35] The Contractor HSSE Manager shall:

- be qualified, experienced, and competent for this responsibility, as agreed with the Employer;
- have the authority to issue directives to maintain the health, safety and security of all personnel authorised to enter and/or work on the Site and to take protective measures to prevent accidents;
- implement the measures set out to address work-related HSSE risks, including those related to sexual exploitation, abuse and harassment.

[CC- 36] In addition to the HSSE Manager, the Contractor shall appoint HSSE Supervisors and/or HSSE Officers at a proportion of 1:25 (or a lower proportion when specified in Risk Assessment) to effectively implement the Contractor's HSSE Program.

[CC- 37] Other supporting functions to consider include emergency response roles for First Aiders and Firefighters, HSSE training, administration, such as implementing the Permit to Work system, and other necessary roles. Appointment of these positions is subject to approval from the Employer.

C HR Team

[CC- 38] The Contractor shall set up a team to implement the present requirements; whose dimension will be adapted to the size of its workforce. The team shall be composed of a minimum of the following:

- A Human Resources Manager who shall, at a minimum: (i) Be able to speak, read and write English fluently, and preferably Chichewa (ii) Hold a relevant University degree in the management of human resources and have knowledge of the Malawian labour regulations



(iii) Have significant experience in vocational training and construction recruitment and human resources management on similar Projects, (iv) Be permanently based at Site for the full duration of the Works, (v) Have the authority to suspend Works when necessary, and allocate all resources, Personnel and Equipment required to take any corrective actions, (vi) Maintain close communication with the Employer's ESHS Team. The manager shall be in charge of supervising the recruitment and management of the workforce and implementing the present labour requirements, including the local employment and women employment plans. It will be responsible to establish an Employee Record system ensuring data protection and confidentiality. It will need to establish a working time monitoring system in order to ensure that there is no overtime beyond the legal requirements.

- One or several Recruitment officers, depending on the size of the workforce to be managed, in charge of performing the recruitment process for the Contractor, implementing the local employment and women employment plans, preparing and posting notices and advertisements, and collecting and screening applications for direct recruitment, advising job applicants on employment requirements and on terms and conditions of employment.
- One or several Human Resources officers, depending on the size of the workforce, in charge of the daily contractual management of the workforce.
- Internal Complaints Management Officers (ICMO): The Contractor shall appoint two persons, a man and a woman, from among the staff who are specifically responsible for implementing an employee grievance mechanism, the Employee Internal Request and Complaint Management Mechanism (IRCMM).
- A GBV/SEA/SH focal point who will be the referral for all GBV/SEA/SH activities. This person can be selected among the HR Team or among the staff, or can be appointed to manage that topic specifically.

4.1.3.2 Equipment

[CC- 39] The E&S team of the Contractor will be allocated the necessary resources to operate independently. As a minimum, the following equipment will be mobilized from the start of the Contractor site mobilisation:

- At least five 4WD vehicles and the necessary operating budget;
- A complete IT workstation each for the E&S Manager, the social manager and the Environmental Manager: computer, printer, Internet access;
- Field equipment: GPS, digital camera;
- One communication equipment per person adapted to the context (mobile phone, satellite phone, or, should coverage not be adequate, a long-range two-way radio).
- Portable equipment for water, air, soil, dust, sound and vibration monitoring to perform at minimum the monitoring of the following parameters as required by the standards set out in the present requirements:
 - For water & wastewater: Probes for in situ measurement of temperature, pH, EC, turbidity, dissolved oxygen.
 - Water quality laboratory equipment
 - Air monitoring: Portable equipment for in situ measurement of particulate matters (PM), CO, CO₂.
 - For food security: properly calibrated food thermometers with probes or other devices
 - Sound and vibration measurement: dB, peak particle velocity.

4.1.3.3 Induction and Training

[CC- 40] The Contractor will prepare and implement an E&S training programme for its Personnel and detail it in the C-ESMP (Part 2)



[CC- 41] Training for each role is identified through a comprehensive training and competency/skills matrix covering the training that will be required for each role.

[CC- 42] Training sessions are two-fold: induction sessions for starting the Works, and technical training as required in relation to the execution of the Works. The training activities are to be documented in the monthly progress report.

[CC- 43] Induction sessions are organised for each Personnel and will cover as a minimum:

- Rules of procedure.
- Workers Code of Conduct and engagement with local community.
- Protection of biodiversity, including restrictions on harvesting, hunting and purchase of bushmeat.
- Protection of areas adjacent to the Site, including fire control measures.
- Waste Management.
- Risks relating to sexually transmitted diseases.
- Basic health: combating waterborne diseases and improving hygiene.
- Asset damage procedure in the event of accident
- Relationship with the local communities.
- Regular tool-box-talks on relevant and topical issues and related to incident reporting figures.

4.1.4 Supply Chain Management & Audit

[CC- 44] The term 'supplier' means any provider of services, goods, or works either directly to the Contractor or to another supplier in the supply chain. This catch-all definition includes subcontractors, consultants, suppliers, and service providers who are described as 'suppliers' in this document.

[CC- 45] The Contractor will prepare and implement a Supply Chain Management Plan and Traceability System that covers ESHS compliance, both in accordance with the provisions detailed below. This plan will be submitted not less than 60 days prior to mobilisation to the Site. Key aspects of this plan are:

- The mapping of all suppliers with detail on whether they are mobilized (i) on site, (ii) else in Malawi, or (iii) overseas.
- Integration of an audit right into its contracts with suppliers, over its suppliers' Working Areas and facilities, including abroad.

[CC- 46] The present ESHS requirements apply to the Contractor and unless explicitly agreed with the Employer, all suppliers at any tier used for the execution of the Works.

[CC- 47] Pursuant to the Conditions of Contract, the Contractor is fully liable for all actions, non-compliance, and negligence by suppliers, their representatives, employees, and workers to the same degree as it would be held liable for its own actions, non-compliance, or negligence or that of its own representatives, employees, or workers.

[CC- 48] The Contractor will ensure that all its suppliers at any tier comply with the ESHS requirements.

[CC- 49] The Contractor will set up all the required measures to reach this objective, among which are:

- Inclusion of ESHS requirements in the contractual documents (tender documents, contracts).
- Monitoring of suppliers' ESHS performance through site inspections, management of non-conformities and monthly reporting of ESHS performance.
- Audit right over its suppliers' Working Areas and facilities, including abroad. For that purpose, the Contractor must integrate an audit right into its contracts with suppliers.



[CC- 50] The Contractor will conduct regular audits of its suppliers. The audit will cover the ESHS requirements, Labour and Human Resources Requirements or Health and Safety Requirements.

4.1.5 Monitoring, Supervision and Reporting

4.1.5.1 Power to Stop Work

[CC- 51] The Employer can halt work if there are ESHS violations or contract breaches that risk personnel well-being, equipment safety, or the environment.

[CC- 52] Any costs resulting from such stoppages are the Contractor's responsibility, and the Employer can offset these costs as stated in the contract. If the Contractor fails to remedy the issue, the Employer can intervene at the Contractor's cost or dismiss those at fault.

[CC- 53] The Contractor, while following the Employer 's directives, is still responsible for their own ESHS compliance. Both parties can enforce disciplinary measures on workers for ESHS breaches.

4.1.5.2 Monitoring

[CC- 54] The ESHS Monitoring Plan, should describe in detail all aspects of the monitoring and provide information on (including but not limited to):

- Monitoring organisation with details on the daily supervisions, site inspections, site visits, and audits planned by the Contractor to ensure ESHS performance is achieved.
- Team and resources dedicated to the ESHS monitoring.
- The precise location of environmental monitoring measurement points (water, air, noise) (GPS coordinates and chosen network that must match the ESHS requirements).
- The parameters and frequency monitored for each measurement must match requirements in the ESHS requirements.
- The equipment used to carry out the environmental monitoring measurements or, failing that, the external laboratories that will be asked to provide the data.

[CC- 55] To meet the above objectives, the monitoring plan must include:

- Occupational health, safety, security and worker's environment. Refer to "Health Safety Security and Worker's Environment Requirements".
- Human resources, including local employment, women and disabled person employment, and employee grievances reporting. Refer to "Labour and human resources requirements".
- Environmental and social aspects (refer to "E&S Requirements") including but not limited to:
 - Respect of Working Areas boundaries.
 - Drinking water, sewage water and drainage water quality.
 - Air quality (particulate emissions) and noise near access roads and in sensitive areas (residential areas close to access roads or the construction site) and therefore potentially impacted by the construction site; in Working Areas likely to accidentally release toxic gases and vapours or impacted by high levels of dust.
 - Hazardous and non-hazardous waste
 - Biodiversity: clearing and earthworks activities protection of trees, plants, protected zones, number of animals rescued on the construction site (and their identification, location of the release area), documentation of any negative impacts (mortality for example) on biodiversity, tree nursery monitoring, biodiversity awareness raising, site rehabilitation activities
 - Erosion and sedimentation control, quarries and borrow area management, materials and earthworks management plan
 - GHG emissions and carbon footprint



- Community relations activities, community health and safety activities, local content and procurement performance, project-induced in-migration management, and cultural heritage management plan.

[CC- 56] The Contractor will monitor their ESHS performance using a series of indicators that will be agreed upon with the Employer prior to the start of the construction. The indicators will be gender-disaggregated whenever possible.

4.1.5.3 Inspections and Supervision

A Site Inspections

[CC- 57] The Employer or his delegated representative will carry out joint inspections, with the Contractor's ESHS personnel, of the Contractor's E&S performance (including that of its subcontractors) on a weekly basis.

[CC- 58] A written report will be drafted for each weekly inspection in a format approved by the Employer, addressing non-conformities detected in the Project Area as specified in the present ESHS Specifications.

[CC- 59] Each nonconformity will be documented by a digital photograph with captions to provide a visual illustration, explicitly indicating the location, date of inspection, and nonconformity in question.

B Site Visit and Audits

[CC- 60] The Employer reserves the right to carry out any checks it deems necessary whenever it is considered useful, including on-site audits, site visits, and interviews with the Contractor's personnel, to ascertain compliance with the obligations arising from the ESHS. The audit can cover the ESHS requirements, Labour and Human Resources Requirements or Health and Safety Requirements. The Employer may appoint third-party audit firms for this purpose

[CC- 61] The Contractor must give the Employer and its representatives, including external auditors, full and unrestricted access to all Working Areas, warehouses, chemical storage areas, toilets, infirmary, canteen and dormitories.

[CC- 62] The Contractor must also authorize the Employer and its representatives to take photographs of the exterior and interior during the visit and provide all the necessary documents requested by the Employer and its representatives.

[CC- 63] The Employer or its delegated representative may request any Project documentation or tangible evidence required to verify the Contractor's reported E&S performance (for example, water quality laboratory test results, employment contracts, etc.).

[CC- 64] The Employer or its delegated representative may interview any personnel of the Contractor or its subcontractors upon a written request.

C Monthly Progress Report

[CC- 65] The Contractor submits a monthly ESHS monitoring report summarising all ESHS initiatives implemented in relation to the execution of the works during the reporting period to the Employer monthly. The activity report is a separate document from the update of the C-ESMP.

[CC- 66] The ESHS Monthly Progress Report is written exclusively in English.

[CC- 67] The ESHS Monthly Progress Report is submitted at the latest 7 working days after the last day of the month in question. The report contains the following information.

- List of ESHS personnel present at the site at the end of the month.
- Construction works activities conducted during the reporting period.
- Inspections carried out (location and intervals).
- Non-conformities detected during the reporting period with descriptions of the root cause analysis and corrective actions taken.



- Description of activities conducted, and measures taken during the reporting period to remedy non-conformities and to manage environmental, social, health and safety risks and impacts
- Description of stakeholder engagement activities undertaken with neighbouring populations, local authorities, and governmental agencies.
- Description of the formal or informal objections (negative media attention, strikes or labour disputes, protests, complaints from communities, NGO or workers or formal notice from authorities...) related to environmental, social, health and safety risks and impacts of the works; including root cause analysis and corrective actions taken.
- Report on training activities (topic, number and duration of sessions, number of participants).
- Provisional environmental, social, health and safety actions for the coming months.
- Monitoring results for the following indicators:
 - Effluent quality
 - Drinking-water quality
 - Hazardous and non-hazardous waste generation
 - Air and noise emissions
 - Working Areas;
 - Recruitment, number of positions and hours worked (regular and overtime) by local Contractor's Personnel;
 - Local employment disaggregated by targeted areas (Tas, districts, region, country, etc.);
 - Women employment;
 - Disabled persons employment;
 - Local content;
 - Labour indicators
 - Workers grievances filed in the internal grievance mechanism;
 - Discoveries under the Chance-find procedure;
 - Health & safety statistics: number of fatal accidents, lost-time accidents, number of accidents without lost-time, serious illness, frequency of accidents, and serious misconduct by Contractor's Personnel; including root cause analysis and corrective actions taken.

4.1.5.4 Communication of Major Incidents

[CC- 68] The Employer is informed within one hour of any accident involving serious bodily injury to a member of personnel, a visitor or any other third party, caused by the execution of the works or the behaviour of the personnel of the Contractor.

[CC- 69] The Employer is informed as soon as possible of any near-accident relating to the execution of the works which, in slightly different conditions, could have led to bodily injury to people, or damage to private property or the environment.

4.1.5.5 Management of Non-Conformities

A Non-Conformities

[CC- 70] The Contractor will record all ESHS incidents, non-conformities and non-compliances through the Project's incident reporting procedure. The ESHS incident reporting procedure will be defined by the Employer. It is a systematic approach designed to identify, evaluate, investigate, correct and document ESHS incidents, non-conformities and non-compliances during the Project.

[CC- 71] Non-conformities detected during inspections carried out by the Employer are subject to a process adapted to the severity of the situation. The non-conformities will be defined as



deviations from the requirements of the applicable regulations, the present ESHS Requirements, the ESMP, the C-ESMP, the Labour and Human Resources Management Plan, and the Health, Safety, Security and Environment Management Plan. Non-conformities are divided into 4 categories as follows:

- Notification of observation of minor non-conformities. The non-conformity results in a notification to the Contractor's Representative, followed by a signed notification of observation prepared by the Employer. The multiplication of notifications of observation at the Project Area or the absence of corrective actions by the Contractor can raise the severity of the non-conformity to level 1.
- Level 1 nonconformity: Non-conformities that do not represent a serious immediate risk for health, environment, social or safety. The non-conformity is the subject of a report addressed to the Contractor and which will be resolved within five (5) days. The Contractor addresses to the Employer a report explaining how the non-conformity has been corrected. Further to an inspection and a favourable evaluation of the effectiveness of the corrective action, the Employer signs a close-out report for the non-conformity. In all cases where a non-conformity of level 1 is not resolved within one (1) month, the severity of the non-conformity is raised to level 2.
- Level 2 non-conformities: applies to all non-conformities that represent a risk with major consequences to health and/or the environment, social or safety. The same procedure as for level 1 non-conformities is applied. Corrective action will be taken by the Contractor within three (3) days. The Contractor addresses a report explaining the corrective actions implemented. All level 2 non-conformities which are not resolved within one (1) month are raised to level 3.
- Level 3 non-conformities: applies to all non-conformities that have resulted in damage to health or the environment or which represent a high safety hazard or high social risk. The highest levels of the Contractor's and Employer's hierarchies present in the Employer's country are informed immediately and the Contractor has twenty-four (24) hours to bring the situation under control. Pursuant to Clause 14.7 of the Particular Conditions of Contract (PC), a level 3 non-conformity results in the suspension of interim payments until the non-conformity has been resolved. If the situation requires, and in pursuance to Clause 8.8 of the PC, the Employer can order the suspension of work until the resolution of the non-conformity.

B Powers to Stop Work

[CC- 72] The Employer can halt work if there are ESHS violations or breaches of contract that risk personnel well-being, equipment safety, or the environment. Any costs resulting from such stoppages are the Contractor's responsibility, and the Employer can offset these costs as stated in the contract. If the Contractor fails to remedy the issue, the Employer can intervene at the Contractor's cost or dismiss those at fault. The Contractor, while following the Employer's directives, is still responsible for their own ESHS compliance. Both parties can enforce disciplinary measures on workers for ESHS breaches.

4.1.6 Working Areas Management

4.1.6.1 Definition

[CC- 73] 'Working Area' defines an area within which the Contractor is to comply with environmental, social, health and safety obligations defined in the present ESHS requirements. The term 'Working Area' means:

- The land where work will be carried out; or
- The land necessary for the implantation of construction facilities (work camp, workshops, offices, storage areas, concrete production plants) including special access roads; or
- Quarries for aggregates, rock material and riprap; or
- Borrow areas for sand and other selected material; or
- Stockpiling areas for backfill material or other demolition rubble; or



- Any other location, specifically designated in the Contract as a Working Area.

4.1.6.2 Working Areas Siting and Prior Approval

[CC- 74] Working Areas have been allocated in a preliminary manner by the Employer to the Contractor.

[CC- 75] The Contractor shall confirm or propose changes in the Working Areas, including additional Working Areas within the boundaries of the project area, 60 days after the Commencement Date for non-objection by the Employer.

[CC- 76] Working Areas footprints shall be clearly designated on-site development plans (1/5,000e topographical maps), including:

- Construction facilities (camps, workshops, offices, storage areas, concrete production plants)
- New or rehabilitated access roads
- Quarries for aggregates, rock material and riprap when applicable
- Borrow areas for sand and other selected materials when applicable
- Areas for spoil dumps
- Stockpiling areas for backfill material, topsoil or demolition rubble when applicable
- New or rehabilitated access roads, vehicle access/turning and parking areas

[CC- 77] If different than the Employer proposal, the Contractor Working Areas location shall comply with the following requirements:

- Working Areas for waste/spoil disposal facilities will have to be located within the Project land-take area.
- Working Areas for construction facilities, spoil dumps and topsoil stockpiles will be sited on disturbed ground wherever possible or within the proposed reservoirs below the full supply level, wherever possible and will avoid all remaining portions of natural habitat including the 50 m buffer zone from riparian/streams.
- The main reservoir dead storage area will be the preferred option to dispose of excess spoil. If spoil disposal areas are outside the main reservoir footprint, necessary permits from local authorities will be obtained.

4.1.6.3 Protection of Adjacent Areas

[CC- 78] Unless instructed otherwise by MHPL, the Contractor will use construction methods and means of protection that minimize the adverse effects on vegetation, soils, groundwater, biodiversity, natural drainage, and water quality in the areas adjacent to the Working Areas for the entire duration of the Works.

[CC- 79] Adjacent areas not designated as Working Areas will be actively protected through demarcating work site boundaries on site development plans and on the ground to minimise risks of encroachment, including vehicle access and parking areas. Sites for construction facilities, spoil dumps and topsoil stockpiles will be sited on disturbed ground wherever possible.

4.1.6.4 Working Area Approval

[CC- 80] The Contractor will submit to the Employer for prior approval (i) the location of proposed borrow areas or areas to be excavated or (ii) proposed backfill material stockpile locations.

[CC- 81] This requirement also applies to the side casting during the construction of linear infrastructure (such as access roads), which is included in the category of stockpiling of waste material.

[CC- 82] The opening or rehabilitation of all access roads between Working Areas will be shown on a map and approved by the Employer prior to the start of the corresponding works.



4.1.6.5 Working Areas Location

[CC- 83] Working Areas for construction facilities, spoil disposal and topsoil stockpiles will be sited on disturbed ground wherever possible.

[CC- 84] Unless instructed otherwise by the Employer, the Contractor defines the perimeter of the Working Areas at a distance of at least:

- 50 m from any permanent water course and outside of floodable areas;
- 300 m from sensitive urban services and buildings (health centre, school, water supply for populations);
- 200 m from any housing; and
- 300 m from housing in the specific case of work requiring the use of explosives.

[CC- 85] In cases where the Working Areas are established at distances lower than those above-mentioned from points, the Contractor must conduct a baseline assessment of the assets within the set distances. This baseline assessment is performed by a sworn bailiff and supported by the preparation of a bailiff's sworn statement, including pictures of the assets and their GPS coordinates.

4.1.6.6 Demarcation of Working areas

[CC- 86] As a minimum all active Working Areas - whether temporarily increased or decreased for the sake of construction - will always be demarcated as follows:

- The entire perimeter of land sites with a surface area of less than 2 hectares is physically demarcated with a fence or tape.
- For Working Areas with a surface area of more than 2 hectares, the perimeter will be physically demarcated by a perimeter track, road, signs or any other means leaving no possible ambiguity as to the location of the Project Area perimeter.

[CC- 87] The Contractor will be responsible for the installation and maintenance of the fencing of its Working Areas.

[CC- 88] The Contractor will provide suitable site boundary fencing for certain parts of the Works where the Employer or Contractor considers that the fence is required for protection of the adjacent area, safety or security.

[CC- 89] In particular, construction facilities on the Neno side of the main dam within the proposed conservancy area shall be fenced to prevent human access.

[CC- 90] On completion of the Works, unless otherwise required by the Employer, all fencing will be removed, and the Contractor will reinstate the Site.

4.1.6.7 Working Areas Environmental and Social Protection

[CC- 91] Prior to the opening of any Working Area and associated vegetation clearance, the Contractor shall prepare an Environmental and Social Protection plan (part 2 of the C-ESMP) dedicated to the targeted Working Area and present an overview of the identified impacts generated on the specific Working Area and the mitigation measures to be developed and implemented. This plan shall cover the following items:

- Documentation of Working Areas conditions
- Pre-construction E&S surveys
- Mitigation measures as per the ESHS requirements

[CC- 92] The results of the surveys and mitigation measures shall be presented in a Protection Plan to be submitted to the Employer clearance prior to the start of the vegetation clearance on the targeted Working Area.

A Documentation of Working Areas Conditions



[CC- 93] The Contractor shall document the baseline condition and any subsequent changes in condition of all Working Areas from the start of works until the Performance Certificate is issued. Documentation comprises dated and geo-referenced colour photographs taken from a constant angle and viewpoint.

[CC- 94] The Working Areas condition is documented as a minimum for the following stages:

- Before any Working Area disturbance at the start of works;
- On completion of works, but prior to starting rehabilitation;
- On completion of rehabilitation and revegetation, if necessary, but prior to the Taking Over Certificate issuing;
- After the end of the Defects Notification Period and prior to the Performance Certificate issuing.

[CC- 95] The Contractor specifies in (i) the list of viewpoints to be used, (ii) areas to be photographed, and (iii) methods used for taking and archiving photographs.

[CC- 96] Adjacent areas (100 m from the perimeter of the Project Area) are included in photographic documentation.

[CC- 97] Unless instructed otherwise by the Employer, structures to be buried are photographed weekly until covered. As a minimum, the structures are photographed twice for works with a duration of less than 7 days, and at least once a week for works with a longer duration.

[CC- 98] Photographs are archived in digital format and provided to the Employer monthly under the monthly progress report.

[CC- 99] The nomenclature of electronic files for photographs explicitly indicates the Project Area, date and structure documented.

B Pre-construction E&S surveys

[CC- 100] The Contractor's E&S personnel (the Social and Environmental manager or their staff) shall perform pre-construction E&S surveys before any disturbance of the Working Area at the start of works.

[CC- 101] E&S surveys will require the personnel to visit the targeted Working Area and adjacent areas to:

- Describe the Working Area and adjacent areas landscape (slopes, soil characteristics, etc.), ecological condition (natural, modified, critical habitat), key biodiversity assets including the presence of ecologically sensitive areas, endangered fauna and flora species, nesting sites, plant and wildlife species identified as major in terms of conservation and site-specific habitat features requiring protection, Alien Invasive Species and trees with a tree diameter at breast height (dbh)>30cm to inform the biodiversity protection measures, vegetation clearing and landscaping and revegetation activities required as part of the Site decommissioning and reinstatement activities.
- Describe the Working Area and adjacent areas' social condition (prominent social features/assets, e.g., water bodies, forest resources, sacred trees, villages, housing, economic activities, graveyards, farmland, etc.). When houses are located within a 100m buffer from the planned Working Area, pictures shall be taken of the houses, and any cracks shall be noted in the report.
- Determine the potential presence of cultural heritage artefacts in the Working Area and adjacent areas.

[CC- 102] Pictures shall be taken of the Working Area and adjacent areas landscape and key E&S features. Those features shall be georeferenced and presented on 1/5 000e topographical maps showing the location of the Working Areas, the areas to be cleared completely or partially and the key E&S assets identified during the surveys.

C Pre and Post-Construction E&S Surveys for the S137 and Service Road



[CC- 103] The Contractor E&S personnel shall conduct pre-construction surveys and documentation of existing road conditions and buildings within a 100m buffer from either side of the upgraded S137 and main dam to regulating dam service road before construction, including buildings of households who will be temporarily relocated, except where the road is asphalted. Buildings within 100 m from each side of the non-asphalted roads used by the Project construction trucks presenting cracks pre-construction will be recorded, cracks measured and photographed.

[CC- 104] The religious buildings and cemeteries located adjacent to the construction activities will be protected from potential damages due to construction methods if needed.

[CC- 105] The Contractor shall monitor new/increased cracks recorded at each building to minimise the number of allegations raised under the grievance mechanism. The Contractor shall have to demonstrate how it will be monitored. The frequency of monitoring will be adjusted according to the Project construction traffic.

[CC- 106] Damages to existing buildings caused by the construction methods shall be fixed or compensated by the Contractor.

[CC- 107] The contractor will inspect the condition of religious elements after the road is refurbished and throughout the Project's construction period.

D Mitigation Measures

[CC- 108] Based on the results of the surveys, the Contractor shall summarise the potential adverse effects of the Working Area clearing on local communities and natural environment; propose mitigation measures as per the ESHS requirements, including a description of the planned methods and schedule for river protection, tree marking, tree cutting, vegetation clearing and debris management, as well as adjacent vegetation preservation; and describe reinstatement or rehabilitation measures and schedule for the specific Working Area.

E E&S Clearance Delivery

[CC- 109] Upon receiving the E&S protection plan, the Employer shall:

- Perform a joint site visit with the Environment Officer(s) and the Employer personnel.
- Review the plan and issue an E&S clearance giving in-written the agreement from the Employer to start clearing works on any new Working Area.

[CC- 110] Upon receiving the clearance, the Contractor shall ensure that all clearing activities, earthworks, and levelling/grading works are restricted to designated areas outside sensitive ecological and archaeological areas and that clear measures to protect adjacent areas are put in place.

4.2 Finalization of Design

4.2.1 Detailed Design

[CC- 111] The Contractor shall prepare the Detailed Design prior to launching the construction activities. This design shall consider the following requirements.

4.2.1.1 Construction and Operation Measures

[CC- 112] A lighting strategy will be developed and implemented at each worksite, accommodation camp, and Project infrastructure, such as switchyards, during construction and operation to reduce direct lights toward sensitive areas, including Majete Wildlife Reserve, and minimise sky glow effects.

[CC- 113] Permanent and temporary waste storage will be placed over 100 m from any natural sensitive area, over 500 m from any socioeconomic sensitive area, with the exception of waste



storage areas in the accommodation camp, and on a flat impervious surface to prevent infiltrations.

[CC- 114] The following areas will be fenced off: i) the dangerous areas of the quarries, ii) the area on the Blantyre side of the regulating reservoir from the main dam to 1.5 km downstream of the main powerhouse and including the main switchyard, iii) the regulating dam, and iv) the regulating dam switchyard.

[CC- 115] Indigenous trees will be planted around the operator's village and other permanent facilities for visual screening, where operationally feasible.

[CC- 116] The economic and technical feasibility of environmentally friendly alternatives to the use of shotcrete/concrete (vegetation, stone walls) for above-ground facilities will be examined and executed as soon as possible.

[CC- 117] Operators' village and offices will be equipped with wastewater collection and treatment systems to ensure sanitary and domestic wastewater discharges comply with national emission limit values and IFC EHS guideline emission limit values.

4.2.1.2 Dam Design

[CC- 118] Project's infrastructures, e.g. main powerhouse and switchyard, regulating dam switchyard will be painted with colours that reflect and blend with the colours of the surrounding landscape – shiny materials or pure blacks and whites will be avoided.

4.2.1.3 Road Design (Service Road and S137)

[CC- 119] Road sections in Chikuli and between the airport to the S138 will be surfaced.

[CC- 120] The S137 road design will be adjusted to maintain a minimal distance of 3 m from the roadside to the buildings, as feasible. This safety distance must be implemented as a minimum between the road and sensitive buildings such as churches, schools and health centres.

[CC- 121] Traffic calming measures, including road narrowing features and speed bumps as feasible, for speed reduction will be implemented at village locations where high numbers of pedestrian movements are expected, i.e. on approach to Singano, Botomani, Mwasamba, and Chikuli trading centre.

[CC- 122] Additional signage, speed calming measures, and speed enforcement are planned for road safety along the upgraded S137 road and the main dam to regulating dam service road, which will consider the requirements for collisions with wildlife.

[CC- 123] The Contractor shall, during the Detailed Design phase, finalise the land requirements for the S137 and the service road, taking into consideration the following requirements:

- In Blantyre District, some buildings are located right on the border with the S137 road works land requirements. During the Detailed Design, options to avoid impact on these structures will be defined and implemented.
- The Basic Design for the S137 works does not include the areas for the construction camps, the laydown areas, or any borrow area to be used for the construction activities. It also does not include the drainage works. The Contractor shall locate these elements.
- The design of the main dam to the regulating dam service road will be adjusted to avoid the settlements belonging to Mpindo Village and located along the service road between the main works area and the regulating dam. A 200 m buffer between the road and each identified settlement must be implemented.
- The Contractor shall optimise the Project land needs to avoid the physical displacement of households living in Feremu for the new Section of the S137 road to be constructed in Neno District, where two options are considered.

4.2.2 Pioneer Camp Management



[CC- 124] The Contractor shall submit a pioneer camp management plan whose purpose is to show how the Contractor intends to operate its camp in line with the ESHS requirements during the early phases of construction prior to the establishment of the main Construction camp.

[CC- 125] This will include details on:

- Camp security and access control
- Type of accommodation facilities and sanitary facilities provided in the camp
- Provision of meals in respect of food safety
- Provision of drinking and non-drinking water (including boreholes if required)
- Management of waste (hazardous and non-hazardous)
- Management of wastewater, including drainage and rainwater collection systems
- Management of workers 'health and hygiene (first aid and medical services)
- Gender-oriented measures aimed at preventing GBV/SEA/SH on the pioneer camp

[CC- 126] The Plan shall be submitted to the Employer 30 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilisation to the Site for non-objection by the Employer.

4.2.3 Construction Camp Management

[CC- 127] The Contractor shall submit a construction camp management plan that shows how it intends to operate its camp in accordance with the ESHS requirements.

[CC- 128] This will include details on:

- Camp security and access control
- Type of accommodation and sanitary facilities provided on the camp
- Provision of meals in respect of food safety
- Provision of drinking and non-drinking water (including boreholes if required)
- Shops and leisure facilities
- Management of waste (hazardous and non-hazardous)
- Management of wastewater, including drainage and rainwater collection systems
- Management of workers 'health and hygiene (first aid and medical services)
- Gender-oriented measures aimed at preventing GBV/SEA/SH in the camp

[CC- 129] The Plan shall be submitted to the Employer 60 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilisation to the Site for non-objection by the Employer.



4.3 Biodiversity & Ecology

4.3.1 Biodiversity Management Plan

[CC- 130] The Contractor will develop and implement a Construction Biodiversity Management Plan (C-BMP) that includes at least the measures detailed below. The plan will be submitted at least 60 days before mobilization to the Site.

4.3.2 Biodiversity Awareness

[CC- 131] The Contractor shall ensure that its personnel:

- is aware of the species of conservation concern/interest in the Project Area.
- is aware of the animal rescue procedure.
- shall not approach, injure, hunt, capture, possess, feed, transport, rear or trade wild animals and/or collect birds' eggs while working in the Working Areas.
- shall not fish in the rivers, streams or ponds.
- shall not collect flora species while working on the Working Areas.
- shall not collect and keep for personal use or sell wild animal products.
- shall report any sighting or finding of dead wildlife to the Employer immediately.
- shall protect excavations with temporary fencing to prevent injury to animals.
- shall immediately alert the animal rescue team if any trapped animals are found.
- shall report all observations of injured animals to the Employer, including those injured by the Contractor's personnel or subcontractors.
- shall not disturb natural habitats outside the Working Areas, including areas near the Majete Wildlife Reserve and the future conservancy area in Neno.
- shall only use designated roads or paths and abide by speed limits.
- shall not start forest fires.
- shall not collect or purchase charcoal or encourage charcoal-related activities.

[CC- 132] This shall be done through:

- Integration of the abovementioned requirements into the Code of Conduct to be signed by all employees and in the Rules of Procedure.
- Integration of biodiversity protection measures in Method Statements, when applicable.
- ESHS inductions (Ref. Labour and Human Resources Requirements), weekly toolbox talks, and specific training sessions. The Contractor shall develop Information, Education and Communication (IEC) material that provides information concerning biodiversity and in particular:
 - The sensitivity of the Project Area.
 - The identification of species at stake notably through creating an identification handbook distributed to all employees.
 - The identification and eradication of invasive species.
 - Malawi regulations for the protection of species.
 - Biodiversity protection measures to be implemented by the Contractor and the Employees.
 - Wildlife encounters and rescue procedures to be respected by Employees.

[CC- 133] ESHS inductions and subsequent training shall be carried out before any intervention on site, shall be performed regularly and shall be documented.

[CC- 134] The Contractor shall supplement this training with regular information on the progress of implementing biodiversity protection measures.



4.3.3 Biodiversity Protection and Management

4.3.3.1 Recruitment of Environmental Officer(s)

[CC- 135] The Contractor shall recruit one or more full-time on-site Environmental Officer(s) with relevant ecological experience, including in snake handling, for the duration of the Works.

[CC- 136] These personnel shall be trained to identify local sensitive species as well as alien invasive species. They should be able to train designated personnel on specific topics.

4.3.3.2 Majete Wildlife Reserve Steering Committee

[CC- 137] A steering committee involving the Contractor(s) and the Majete WR management will be established and will meet regularly to engage and resolve wildlife and biodiversity related issues.

[CC- 138] The Contractor shall designate one of its E&S Team members, preferably the Environmental Manager, to participate to this steering committee.

4.3.3.3 General wildlife mitigation measures

[CC- 139] The Contractor Environment officers shall apply the following mitigation measures:

- Speed limit to be implemented on all Project access roads to limit collision of animals. All animal collisions (even if not causing damage to vehicles) shall be reported into the Wildlife Tracker.
- Morning checks to remove reptile species from roads and hard sand areas if basking prior to beginning works. The reptile removal shall follow the snake-handling procedure. Logging of occurrences in the Wildlife Tracker.
- Daily check of trenches and holes to be undertaken prior to works commencing so that fauna can be rescued and relocated if needed. Logging of occurrences in the Wildlife Tracker.
- Regular inspection of drainage lines and woodlands in the vicinity of the construction camps and Working Areas to monitor whether snaring or trapping of wildlife is taking place. Logging of occurrences in the Wildlife Tracker.
- Excavations and trenches to be fenced, covered or a means of egress provided, such as a ramp, to enable trapped fauna to escape, when not in use.
- On the day the clearing activities are to be implemented within the project area, pre-clearance on-site survey in order to ensure there are no remaining nesting birds, pangolins or any other sensitive fauna and flora in the area that would require an animal rescue operation. Logging of occurrences in the Wildlife Tracker.
- On the day fencing activities are to be implemented within the project area, pre-clearance on-site survey to detect presence of threatened or large wildlife species that may be at risk of impact during fencing, and which can get trapped against fences. Logging of occurrences in the Wildlife Tracker.
- During vegetation removal, if a bat roost is suspected in a felled tree, leave it in situ overnight before evacuating the downed tree. Logging of occurrences in the Wildlife Tracker.
- Waste Management Plan to include measures for discouraging access to waste by wild animals.
- Burning of any material shall not be permitted unless agreed otherwise with the Employer in designated places.
- Surveillance of staff involvement in hunting or purchase of bushmeat and logging of occurrences in the Wildlife Tracker.



4.3.3.4 Wildlife Tracker

[CC- 140] The Contractor shall develop a Wildlife Tracker to record all project-related incidents related to sightings or encounters with wildlife. This should include incidents related to rescue (animals rescued from trenches, reptile removal from roads) or drowning of wildlife in project areas and camps, wildlife-vehicle collisions (e.g. snakes and other animals) including those that do not damage vehicles and reports from community members.

[CC- 141] Information included in the tracker should include date of occurrence, named location, GPS location, person reporting the incident, description of incident, photograph, identification of species involved, person confirming identification.

4.3.3.5 Species identification handbooks

[CC- 142] The Contractor shall prepare prior to the start of the construction:

- A sensitive species handbook, for the identification of species at stake which will provide photographs of species of conservation concern/interest, and what to do if such an animal/plant is found.
- An alien invasive plant field identification guide to assist the Environmental officers with plant recognition and understanding of suitable control measures.

4.3.3.6 Wildlife Interaction Measures

[CC- 143] The Environmental manager shall develop and implement measures to respond to wildlife interaction, especially large mammals and crocodiles.

4.3.3.7 Animal Rescue Operations

[CC- 144] The Contractor shall be responsible for animal rescue operations for animals that would be threatened by the work, trapped on the Working Areas or that would threaten the safety of the worksite. The Contractor shall establish a clear procedure for both capture and release, in partnership with the Employer, adequate stakeholders involving the Department of Wildlife or the Majete Wildlife Reserve. The Contractor shall immediately contact the Employer in case of the presence of a large animal (rhinoceros, hippopotamus, crocodiles, elephant, giraffes, lion, zebra, etc.) within the Working Areas or in the immediate vicinity of the Working Areas. If required, the works will be stopped, and the employees evacuated from the area until the animal rescue operation is complete. In no case the Contractor is allowed to manipulate or try to displace the animal with its own means. The Contractor will ensure that its personnel is aware of the animal rescue procedure through the biodiversity awareness actions.

[CC- 145] The animal rescue shall be logged into the Wildlife Tracker tool.

4.3.3.8 Lighting Mitigation Measures

[CC- 146] A lighting strategy shall be implemented by the Contractor at each Working Area and on the construction camp, as well as at the Operators' village and other Project's facilities (main dam, regulating dam and associated switchyard). Key measures will help reduce direct lights toward Majete and minimise sky glow effects and include:

- Minimize the number of light fixtures to the bare minimum.
- Lighting, when possible, should not be used 24 hours, but switched off as much as possible.
- Regulating dam, main powerhouse and switchyards with limited and non-permanent lighting to reduce light 'spillage' if feasible and acceptable from a security standpoint.
- Install light fixtures that provide precisely directed illumination and non-permanent lighting to reduce sky glow effects beyond the immediate surrounds of the various sites where external lights are required, specifically at the main dam, main powerhouse, regulating dam (construction worksites and in operation), accommodation camp, operators' village and dam bridge.



- Ensure that high pole top lighting at these locations is shielded from the south, i.e. aimed towards the north and specifically away from the sensitive viewpoint sites, including Majete.
- Limit light intensity and duration (i.e. only keep them on when necessary and at specific workstations/areas).
- Implement motion sensors and or timers in areas where lighting is not required permanently, i.e. along pedestrian pathways in the operators' village and accommodation camp.
- Contain light within the intended areas and minimizes sky-glow by maintaining direct light downward.
- Utilize warm-coloured LED lights with a colour temperature below 3000k wherever possible, as they are less disruptive than cooler-coloured lights.
- Conduct routine monitoring of lighting to modify and adapt lights to minimise light spill to the minimum necessary.
- Use lights with reduced or filtered blue, violet and ultraviolet wavelengths (i.e. light with short wavelengths, 400 nm to 500 nm) at night:
 - Outdoor lighting with strong blue content is likely to worsen sky glow because it has a significantly larger geographic reach than lighting consisting of less blue.
 - Blue-rich white light sources are also known to increase glare. These lights create potential road safety problems for motorists and pedestrians.
 - Warm-appearing light sources are recommended including low-pressure sodium (LPS), high-pressure sodium (HPS) and low-Correlated Colour Temperature (CCT) LEDs.
 - Warm toned or filtered LEDs with a CCT 3000K or lower should be used to minimise blue emission.

4.3.3.9 Protection of Ecologically Sensitive Areas and Endangered Species

[CC- 147] The Employer reserves the right to defend areas or plants that are identified in the 2024 ESIA or in the 2024 BAP. Any area or plant defended by either the Contractor or the Employer will be strictly prohibited from access, cutting or destruction.

[CC- 148] The Contractor shall avoid any mortality of endangered and/or limited distribution species and shall avoid destruction of ecologically sensitive areas such as wetlands.

[CC- 149] Wetland areas include marshes, natural or artificial bodies of water, whether permanent or temporary, where water is stagnant or flowing. Wetlands in the Project Area are limited to seasonal streams and a seasonal seep near the dam wall. Filling of all or part of such area is not permitted, unless the works are necessary according to the provisions of the Contract or the instructions of the Employer.

[CC- 150] The Environmental Officer(s) will assess Working Areas and adjacent areas before they are cleared, as part of the Pre-construction surveys, to identify:

- Particularly ecologically sensitive areas that should be left undisturbed (to be cordoned off).
- Endangered species and/or limited-distribution species.
- Priority species to be put in the nursery.

[CC- 151] Once identified and mapped in relation to their stakes, the Contractor will mark physically and protect these areas (with prohibition of access) and plants (with integral protection or, if required, transplantation or storage in the nursery while awaiting transplantation). In particular, the Contractor shall provide clear marking and protection of priority species awaiting transplantation or nursery placement.



4.3.3.10 Neno Conservancy Area

[CC- 152] The Contractor E&S personnel shall be trained by MHPL (through documented sessions) on the sensitivity and objectives of the planned conservancy area and protection measures to be undertaken. The Contractor E&S personnel shall then train its vegetation clearing and earthworks operators on the same topics.

[CC- 153] Any facilities which are not strictly required or can be located outside of the future conservancy area will not be in this area to maximise habitat protection.

[CC- 154] The use of existing tracks on the west bank (Neno side) to construct the regulating dam by the Contractor will be prohibited with regular checks of compliance conducted by MHPL. The Contractor shall access the regulating dam only by roads on the left bank.

[CC- 155] No vegetation clearing and no construction activities (including access tracks) will be authorized within the future conservancy area before (i) MHPL has approved the layout of all facilities and the protection measures of the adjacent areas, (ii) the vegetation clearance construction methods have been approved and the area to be cleared demarcated physically on the ground, and (iii) the protection of any trees with a dbh>30cm within 20 m of the external limit of the worksite has been implemented.

4.3.3.11 Access Management for Biodiversity Protection

[CC- 156] The opening of new access routes as well as the improvement of existing ones could facilitate illegal access to natural resources and damage biodiversity, increasing illegal poaching and charcoal making. The Contractor shall implement a set of measures to limit these effects of the worksite and shall (at a minimum):

- Install at least one checkpoint to be guarded by the Contractor private security services at the main MD-RD service road entrance (junction with S137). More checkpoints could be required and will be instructed by the Employer to the Contractor. On these checkpoints, the Contractor shall:
 - Recruit dedicated checkpoint staff.
 - Ensure they understand wildlife laws, poaching methods, and the importance of their role. Train checkpoint staff on wildlife identification, legal frameworks, and enforcement procedures.
 - Equip checkpoints with necessary tools (e.g., binoculars, cameras, communication devices).
 - Conduct thorough inspections of vehicles, cargo, and passengers.
 - Coordinate with local law enforcement, Majete WR security staff, and communities. Share intelligence among checkpoints to stay ahead of poachers.
 - Document the activity: Maintain detailed records of each vehicle passing through the checkpoint. Record the type of animals being transported, their numbers, and any relevant identification (e.g., microchips, tags). For threatened animal species, if living, document any signs of distress, injuries, or violations. Note the time and location of each inspection.
- Deploy mobile patrols along the Project service roads to deter poaching.
- Allow access across the Shire River via the coffer dam and/or the regulating dam by the Majete Wildlife Reserve security personnel when it does not interfere or conflict with the safety of construction activities, to improve security patrols around Majete WR.
- Restrict access other than that strictly necessary for site activities. All accesses are controlled and authorized only to site personnel during work periods.
- Clearly mark the Working Areas limits to prevent access to and activities outside the Working Areas.

[CC- 157] the Employer will negotiate with the Majete WR to ensure that patrols are organized across the Project Area during the construction. The final security arrangements will be communicated to the Contractor. The Contractor shall:



- Accept that Majete WR security staff or MHPL appointed security services patrol the Project Area, including the Project main dam to regulating dam service road and other access roads.
- Allow access across the Shire River via the coffer dam and/or the regulating dam by the Majete Wildlife Reserve security staff when it does not interfere or conflict with the safety of construction activities, to improve security patrols around Majete WR.

4.3.3.12 Invasive Alien species prevention and management

[CC- 158] The Contractor shall not introduce Alien Invasive Species (AIS) and shall remove all AIS from its Working Areas using methods approved by the Employer. For this purpose, the Contractor shall implement measures to limit the spread of invasive flora, including at a minimum:

- The Environment Officer(s) shall identify the range of alien invasive plants that may occur on the site with an understanding of the risks and control measures required to manage them. The officer shall establish which species or pathogens are at risk of being brought to the Project area via imported equipment or vehicles or movement of equipment and vehicles in-country.
- The Environment Officer(s) shall ensure staff awareness regarding the identification and eradication of invasive species via visual and adapted documentation and specific training (Ref. 4.2.2.2.5).
- The Environment Officer(s) shall ensure the vegetation clearing team is trained to identify alien species and use of control methods, selection, application, handling and storage of herbicides, cleaning and maintenance of equipment and record keeping.
- Prior to vegetation clearance, the Contractor will conduct a drive through or walkover of the Working Areas to confirm presence of alien invasive plants and will map and take coordinates of locations. AIS plants at these sites should be promptly removed. This should be done prior to vegetation clearance for construction to limit the risk of spread and requirement for ongoing management control.
- The Environment Officer(s) shall develop protocols to clean vehicles and equipment: (i) prior to export (ii) on arrival in country; and (iii) on arrival to site, including:
 - All equipment and vehicles brought into Malawi shall be washed to be free of dirt and weeds carrying potential alien invasive species.
 - All machinery shall be washed before dispatching to the Working Areas in order to guarantee the absence of invasive plants. Construction machinery must be washed thoroughly (inside and outside) at a dedicated wash bay that will be constructed draining to a collection pond where all vehicles entering the construction sites will be cleansed to ensure no vehicles brought to site carry alien plant seeds or soil and mud contaminated with AIS plant seeds.
 - When earthworks are carried out, all vehicles shall be washed upon arrival on site and before moving them to other areas.
 - The Environment Officer(s) will conduct routine checks of vehicles entering the site and use of wash bay facilities. Records of vehicle washdowns at wash bays will be maintained and are subject to verification.
 - All equipment and vehicles exiting Malawi shall be washed to be free of dirt and weeds carrying potential alien invasive species.
- Reforestation and revegetation after the dismantling of the construction site shall be done using only species naturally present in the country (indigenous) without invasive characteristics. The list of species that are authorized for revegetation will be submitted to the Employer for approval before being planted.
- The Contractor shall conduct weekly monitoring of Working Areas to verify the status (presence, abundance, maturity/seeding/flowering condition). Sites to be monitored include project access roads (particularly new access created for the project); quarries, topsoil stockpile site, construction camps and laydown areas).



- Any evidence of alien plants shall be cleared and removed within 24 hours. Methods include hand pulling or digging to uproot plants or using any other control procedures applicable to the AIS (e.g. physical removal, slashing, mulching, mowing, etc.). Plants shall be immediately bagged or loaded onto enclosed or covered truck (to minimize risk of windblown seed) for removal to a designated waste site or incineration (where possible). Methods used to control or prevent alien species shall not cause adverse impacts on the environment or communities. Herbicide use is not allowed unless otherwise instructed by the Employer.
- The Contractor shall maintain a record or log of occurrence of alien plant infestations and corrective actions taken (including date, location name and geolocation, person/s responsible, actions taken).
- Follow up checks may be required to monitor regrowth in cleared sites.
- The Contractor shall undertake post-construction site monitoring for one year after completion of construction and will include alien plant, erosion and sedimentation, and reinstatement of vegetation.

4.3.3.13 Social influx management for the protection of biodiversity

[CC- 159] The Contractor shall implement specific measures aimed at reducing the impact of the construction and social influx on biodiversity. To this end, the Contractor will:

- Formally prohibit all employees from hunting and fishing in the project area, as well as setting or bringing weapons and traps within the employees' camp and in the Working Areas.
- Formally prohibit the consumption of bushmeat or wild fish and encourage the reduction of local poaching practices.
- Integrate this prohibition into the Code of Conduct and Rules of Procedures with:
 - Prohibition of hunting, consuming, transporting, selling of wild game or fish.
 - Prohibition of possession of weapons, traps, hunting or fishing equipment.
- Provide a regular supply of animal protein in the canteens installed in the camp(s) to compensate for the bushmeat.
- Train all staff on the prohibition of gathering, fishing or hunting activities (especially in the face of local hunting habits).
- Conduct awareness training for all site personnel in the fight against poaching so as not to develop the local bushmeat or wild fish trade. This measure will be particularly directed towards local personnel who will be encouraged to convey this message and these practices among their families located near the Project Area.



4.4 Tree Cutting, Vegetation Clearing and Debris Management Plan

[CC- 160] The Contractor shall prepare, submit and implement a Tree Cutting, Vegetation Clearing and Debris Management Plan prior to the start of construction. It will include links to the Invasive Species Management measures to minimise risk of alien plant spread during vegetation clearance activities.

[CC- 161] The plan shall cover all the Working Areas including the access roads. For each of the clearing areas, the plan shall describe:

- The area shown on a plan with a minimum scale of 1/5,000, indicating the clearing purpose: areas to be cleared totally (e.g. for earthworks) or partially, with details on area where vegetation, topsoil and stumps are removed and areas where those are retained.
- Clearing areas demarcation methods, protection of areas not to be totally cleared and of adjacent areas.
- Marking system for the wood to be cut or to be preserved, as per the Employer's instructions.
- Prior photographic surveys of clearing areas to be reinstated.
- Clearing schedule considering constraints on bird nesting periods and other sensitive periods, as defined by the Employer.
- Methods for tree cutting and vegetation clearing, taking into consideration some prohibitions or restrictions listed further below, including the need to protect adjacent areas and to get approval from the Employer prior to any clearing activity.
- Location and layout of storage areas.
- Green waste management measures, including measures taken by the Contractor to re-use the biomass (e.g. mulching and chipping, and creation of wood briquettes).

[CC- 162] The plan shall be submitted not less than 60 days prior to mobilisation to the Site.

4.4.1 Demarcation of Clearing Areas and Protection of Adjacent Areas

[CC- 163] The Contractor shall ensure that when simple clearing (tree cutting) is sufficient, the herbaceous vegetation cover and tree root systems shall be maintained. The Contractor shall ensure that site clearance shall be restricted to the minimum required as per demarcations on site development plans.

[CC- 164] Upon receiving the E&S clearance from the Employer, the Contractor shall:

- Physically demarcate the clearing areas with a fence or tape.
- Mark all large trees (e.g. baobabs) and protected trees in order to retain them wherever possible within construction footprints (e.g. in the construction camps and along transmission lines), where tree retention does not compromise on health, safety and operational requirements especially for the transmission lines corridor.
- Place environmental protection signs in areas identified as ecologically sensitive and in other areas directly adjacent to the site perimeter and containing species of flora and fauna likely to be disturbed or endangered during construction work.
- Inform the vegetation clearing team about the clearing restrictions in place.
- Mobilize the Environmental Officer to oversee clearing works all the site vegetation clearance activities and ensure boundaries of designated areas are adhered to by all personnel.
- The officer shall in particular:
 - Verify that equipment and vehicles shall be restricted to designated and marked access tracks and turning areas.



- Use the best available techniques to control the respect of the areas to be cleared so as not to exceed the authorized limits, using for instance drones.

4.4.2 Tree Marking

[CC- 165] During the pre-construction surveys, the Contractor shall identify each tree with a diameter at breast height (dbh)>30cm, determine its exact diameter, species and its georeferenced location. Any felling of a tree of more with a diameter at breast height (dbh)>30cm will imply a prior approval from the Employer through the E&S clearance procedure. The Employer has the right to refuse the cutting of some trees.

[CC- 166] Trees to be preserved shall be marked with paint and protected against clearing machinery using a method approved by the Employer.

4.4.3 Clearing schedule and choice of optimal period

[CC- 167] The Contractor will optimise the period of vegetation clearing to take into account the reproduction period of protected and/or conservation-sensitive species, as identified in the ESIA/ESMMP, without the Contractor being entitled to any compensation. It is expected that no tree felling during bird nesting periods where practicable (to be determined by the Environment Officer).

[CC- 168] The Contractor shall consider the clearing of land outside the rainy season (in particular within 20 m around watercourses) in order to avoid erosion risks and shall include this in its overall project planning as this can be a motive for delay.

4.4.4 Clearing Methods

[CC- 169] Clearing shall be undertaken working from the edge of the zone inwards.

[CC- 170] Vegetation clearing using chemicals is not permitted.

[CC- 171] Vegetation clearing using bulldozer is not permitted in zones less than 15 m from areas designated as sensitive by the Employer, where only manual clearing is authorised.

[CC- 172] Burning vegetation or green waste is not permitted.

[CC- 173] The material used for deforestation will be cleaned when it leaves and arrives on site to avoid the proliferation of invasive species potentially present on site.

4.4.5 Tree Cutting and Management Methods

[CC- 174] The Contractor shall detail in his plan:

- the wood extraction and transportation equipment retained by the Contractor,
- the control of these machines,
- wood sorting by species and size,
- temporary wood storage areas,
- the system for the recovery of species of economic value that local populations request to be recovered,
- traffic management for wood transportation, including the axes to be used,
- the monitoring implemented by the Contractor to control this management plan.

4.4.6 Tree Storage and Delivery to Local Communities

[CC- 175] During clearing, the Contractor shall stockpile separately: (i) tree trunks with a diameter at chest height greater than 10cm, and (ii) trunks with a smaller diameter, branches, leaves, stumps and roots.



[CC- 176] All tree trunks with a diameter greater than 10 cm will be put into steres (in pieces of 1m long). Stockpiles of wood resources shall be set aside for community collection in designated places proposed by the Employer, considering restrictions on public access to the construction sites.

[CC- 177] The Employer will liaise with local communities to determine the location of these storage places and ensure that the wood collection does not trigger any conflict between individuals or villages.

4.4.7 Green Waste Management

[CC- 178] For the green waste that is not set aside for community collection, the Contractor shall develop and implement a green waste management procedure. In order of priority, the Contractor shall include measures that allow for:

- heaping and windrowing on the edge of open areas with crushing and composting and then recovery of the compost,
- heaping and natural degradation with or without crushing.
- heaping with or without crushing.

[CC- 179] No burning of green waste will be authorised.

[CC- 180] The green waste management procedure shall define, develop and maintain shredding and composting areas near the main Working Areas to be cleared.

[CC- 181] The green waste management activities shall be reported in the GHG emission monthly assessment of the construction activities.



4.5 Site Rehabilitation

4.5.1 Site Rehabilitation Plan

[CC- 182] Prior to the beginning of Works, the Contractor shall prepare a Site Rehabilitation Plan targeting all disturbed areas no longer used by the Contractor, except for Working Areas located inside the reservoir full supply level.

[CC- 183] The Plan shall be elaborated in accordance with the ESHS requirements and the IFC Performance Standard n°6 (in particular, paragraph 14 and GN 46).

[CC- 184] The plan will include the following elements:

Identification and mapping of the disturbed areas to be restored and their characteristics (surfaces, slopes, soil characteristics, ...). The Contractor shall document the pre-works conditions of all sites to be restored, as per requirements of § 4.1.3.2.

- Management of topsoil.
- Objectives and modalities of site reinstatement.
- Objectives and modalities of rehabilitation and revegetation.
- Species and origin of plants or seeds to be used for revegetation.
- A detailed plan for the establishment, prior to the clearing operations, of a nursery. The establishment and operation of the nursery will be the responsibility of the Contractor under the close supervision of the Employer.
- A detailed schedule of the activities to be carried out and the human resources allocated to each phase.

[CC- 185] The choices of rehabilitation and revegetation planned for each Working Area shall be validated prior to the implementation of the rehabilitation or revegetation measures with the Employer. If no specific instructions are given by the Employer, the Contractor shall rehabilitate the site with the aim of reestablishing native vegetation where possible.

[CC- 186] The plan shall be submitted not less than 60 days prior to mobilization to the Site.

[CC- 187] This plan is to be implemented throughout the duration of construction works as it is not limited to the rehabilitation of Working Areas at completion of the works. During the construction works, it shall cover the rehabilitation measures for Working Areas that are decommissioned as they are no longer used by the Contractor. Therefore, an update of the plan shall be made every year after commencement date and submitted to the Employer for observation (following the beginning of the nursery installation).

[CC- 188] A final plan shall be submitted to the Employer for non-objection at least 24 months before the end of the construction phase, targeting all the areas where temporary infrastructures have been set and shall be removed prior to revegetation.

4.5.2 Management of Topsoil

[CC- 189] During construction (including site restoration), topsoil management shall be implemented to maximise topsoil storage in designated areas, ensure its protection from wind, water runoff, and vehicle damage, and optimise its reuse in site rehabilitation. The following requirements are applicable:

- Unless indicated otherwise by the Employer, the top 25 cm of the soil will be considered as topsoil.
- The Contractor shall carry out a differentiated stripping between topsoil and inert soil in order to reuse the topsoil of the initial site and to guarantee the fertility of the soil at the end of the work.
- Topsoil shall be stored within the cleared areas at the edge of the cleared zone. Topsoil shall be stored in such a way as to maintain its biological functioning (example of



measures: merlon less than 2 m, out of water accumulation areas, etc.) and according to any provisions approved by the Employer to enable reuse during Project Area reinstatement.

- Topsoil storage shall prevent erosion and rainwater run-off.
- Topsoil removal and storage shall be overseen by the Contractor Environmental Officer and storage areas shall be regularly monitored in order to verify the maintaining of the biological functioning and the absence of Alien Invasive Species.

[CC- 190] Shortage of topsoil shall be anticipated for the reinstatement of Working Areas, and the Contractor shall discuss and agree with the Employer on using topsoil from the reservoir area for reinstatement of construction sites located outside the reservoir area and/or landscaping.

[CC- 191] The Contractor shall not, in case of a proven surplus of topsoil, valorise it in adjacent agricultural areas without prior non-objection from the Employer.

4.5.3 Site Reinstatement

[CC- 192] Reinstatement and rehabilitation of disturbed areas will commence as soon as possible after Working Areas are no longer necessary, with the aim of reestablishing the same vegetation and habitats.

The Contractor shall ensure that site reinstatement encompasses the following activities:

- All buildings and free-standing and underground structures (e.g. piping, underground tanks, sumps and basins) shall be removed. All waste and rubble shall be removed in accordance with the provisions of the Waste Management Plan (Ref. § 4.12).
- All contaminated soils are removed and treated as hazardous waste.
- After removal of buildings structures, rubble and contaminated soils, the Contractor returns Working Areas to their original condition, according to the following provisions:
 - Land is levelled to ensure that run-off water drains without eroding soil or stagnating in pools. Erosion control fences or berms may be required in erosion-prone areas. Unless instructed otherwise by the Employer, the gradients of restored sites (excluding backfill) shall be as for the adjacent undisturbed land.
 - Quarries reinstatement works will blend the bases of new slopes with the adjacent terrain to establish suitable conditions for natural regeneration and/or replanting.
 - Rehabilitated Working Areas shall not represent hazards for people. Areas near steep drops at quarries are indicated with permanent concrete signs and if required, fenced off. Holes are refilled. Sharp or unstable items are rendered inoffensive.
 - Soil decompaction
 - Topsoil set aside during initial earthworks, is evenly spread over areas which have been levelled or where ruts have been cut into compacted areas. The surface of compacted soils on Working Areas is loosened by scouring (using rakes or other acceptable methods).

4.5.4 Site Revegetation

[CC- 193] Unless instructed otherwise by the Employer, the Contractor shall undertake revegetation of all Working Areas disturbed by the Works and shall bear the cost of such work. The Contractor shall provide the appropriate human resources and equipment. The Contractor shall anticipate the revegetation in order to ensure the availability of sufficient material and the supply of seeds and plants necessary for the revegetation work.

[CC- 194] The Contractor shall describe in the Site Rehabilitation Plan the planned revegetation works to ensure sustainable Working Area rehabilitation:

- Modalities of rehabilitation and revegetation, prepared by the Environmental manager with the support of an expert in the restoration of the different habitat types affected in the project area (this will be included in the Contractor's costs). This specialist will be in charge



of defining the objective of the rehabilitation activities and the means and modalities necessary to achieve it.

- Trials may be required to assess the most appropriate approach to revegetation; in some circumstances the area could be left to passively rehabilitate (for example if the disturbed area is small and surrounded by native vegetation); in other circumstances (where larger areas have been disturbed) biological rehabilitation using seeder and/or direct planting of native plants, may be required. The aim of revegetation is to achieve a return of vegetation type similar to or ideally better than pre-disturbance.
- Species and origin of plants or seeds to be used for revegetation: the Contractor shall perform a study to determine which flora species should be used for revegetation activities, using information from the pre-construction surveys, ESIA and BAP. The species used for revegetation shall be native, endemic species only suitable for the local ecological conditions, and selected according to the rehabilitation objectives: stabilization of backfill, landscaping, drainage, prevention of erosion, etc.
- The Contractor is encouraged to give priority to:
 - Endemic grass and flora species.
 - Endemic tree species: *Kigelia africana*, *Philenoptera violacea*, *Combretum* spp; *Diospyros kirkii*, *Ehretia amoena*, *Sterculia quinqueloba*
 - Fast-growing tree species that will allow having rapidly shaded areas on the construction camp: *Albizia adianthifolia* and *Albizia versicolor*.
 - Species allowing to create favourable habitat for the local fauna species at stake.
- Prior approval by the Employer is required regarding the species, origin of seeds and plants proposed by the Contractor.
- Protocols should include weekly inspections of rehabilitated areas to remove invasive species and monitor the progress of biological rehabilitation. If monitoring detects native vegetation is not growing in rehabilitated areas, further technical and biological rehabilitation may be required.

4.5.5 Nursery for the Transplantation and Multiplication of Seedlings

[CC- 195] The Contractor shall set up, prior to the clearing operations, a nursery whose objectives will be to:

- Safeguard of local flora species transplanted from the working areas and reservoir areas prior to the start of clearing activities. For that purpose, the Contractor shall plan for a phase, prior to clearing activities and prior to reservoir filling, of research and transplantation of species to the nursery.
- Multiplication of target flora species (priority species as well as local species collected on site) that may be used during the rehabilitation of the worksites.

[CC- 196] The Employer and the Contractor shall agree on the target objectives (number of plants per species) according to the availability of plants.

[CC- 197] The nursery shall be located in the area of the Construction Camp or any other suitable area within the Working Areas but can be built in several sub-units if necessary. It shall have watering, shading and composting systems.

[CC- 198] The Contractor will provide the appropriate human resources (skills in multiplication of plant species) and equipment to set up and operate the nursery. Qualified personnel shall be recruited full-time under the direction of the ESHS Manager.



4.6 Erosion and Sedimentation Control

4.6.1 Erosion and Sedimentation Control Plan

[CC- 199] Erosion control is a prerequisite to guarantee the stability of the slopes, the implementation of site revegetation work and the quality of runoff water discharge from the land exposed for the needs of the construction site.

[CC- 200] The Contractor shall submit to the Employer in its final C-ESMP, prior to the start of any operation requiring earth movements, an Erosion and Sedimentation Control Plan, which will present in detail measures on:

- Topsoil management
- Drainage of rainwater run-offs
- Sediment control
- Sediment control and monitoring during river works

[CC- 201] The potential impacts related to the erosion of the soil exposed during the construction are mainly:

- Accelerated soil erosion.
- Uncontrolled saturation of the soil with water in poorly drained areas resulting in a modification of the stability of slopes or even land subsidence.
- An increase in the load of fine materials in the Shire River and consequently a modification of the aquatic ecosystem.

[CC- 202] The plan shall be submitted no less than 60 days prior to mobilisation to the Site.

4.6.2 Drainage of Rainwater Run-Off

[CC- 203] Construction site runoff management measures will be developed and implemented to prevent runoff from Working Areas, especially quarries, topsoil and spoil storage areas, transporting sediment off-site and causing alteration of surface water quality.

[CC- 204] The Contractor shall ensure that the gradient of all Working Areas allows the collection and drainage of rainwater from the entire surface area to one or several discharge points. No pools of water shall be created.

[CC- 205] Prior to any major earthworks or storage of materials, the Working Areas shall be equipped with a drainage system, along their perimeter, leading to sediment traps / settling ponds responsible for collecting the sediments before their discharge into the environment. A plan for the appropriate dimensioning of the drainage network and the basins will be established by the Contractor. For this type of structure, it shall be demonstrated that it can satisfy the needs resulting from a 24-hour precipitation and a 2-year return period.

[CC- 206] The basin will be cleaned as soon as the accumulated sediments reduce its active volume by 50%.

4.6.3 Sediment Control

[CC- 207] The Contractor shall install sediment control barriers/silt fences to slow the flow of water and control sediment transport on cleared land that has a slope greater than 15%. Sediment control barriers/silt fences will also be required in areas where land is disturbed by the Works and exposed to sheet erosion, and where the surfaces are susceptible to silt erosion. These potentially sensitive areas will be mapped and identified by the Contractor in the Erosion and Sedimentation control plan.



[CC- 208] Sediment control barriers (silt fences) are installed on the slope or at the base of the slope to protect the natural drainage system from sediment accumulation at levels higher than the natural situation. These barriers comply with the following principles:

- Made with geotextiles, straw bales, or any other means approved by the Employer.
- Silt fences are installed following contour lines.
- Deployed before the start of the Works and removal of topsoil. Silt fences can be used for the physical demarcation of Working Areas.
- Installed, cleaned, maintained and replaced according to manufacturer recommendations.
- Drainage surface area does not exceed 1,000 m² per 30 m of barrier. The length of the slope behind the barrier is less than 30 m, and is not used for flows more than 30 l/s.
- The extremities of the fence are directed up the slope.
- Supporting posts must be no more than 2 m apart and sunk at least 75 cm into the ground.
- Along the length of the fence, upstream of the posts, a 20 cm wide trench 30 cm deep is excavated to bury the bottom part of the geotextile used for the fence. It must follow the sides of the trench and must permit an 80 cm width of the geotextile to be buried.
- If a large amount of sediment accumulates, the bottom part of the fence must be reinforced by a grille which must also be partly buried.
- The fence is inspected weekly, and the sediment is removed when it reaches 1/3 of the height of the fence.

[CC- 209] The Constructor shall indicate in the Erosion and Sedimentation control Plan the specific sediment control measures to be applied at each site, which will vary depending on their specific characteristics (slopes, soil characteristics, proximity to waterways, etc.).

4.6.4 Erosion Control on Steep Slopes

[CC- 210] Steep slopes are defined as slopes steeper than 1:1.5. Slopes with an inclination of more than 34° would thus be classified as steep slopes.

[CC- 211] Erosion control on steep slopes subject to gully erosion, as identified in the Contractor's Erosion and Sedimentation control plan, shall be carried out by appropriate erosion control best industry practices. This issue is frequently observed along slopes of major excavations or spoil areas. These measures shall rely on (i) storm-water control design (peripheral drainage), (ii) design of the slope (including berms), (iii) run-off control by revegetation and (iv) stabilisation of sensitive areas by hard engineering methods.

[CC- 212] Erosion control techniques to be considered shall be fully described in the Erosion and Sedimentation control plan, to be prepared by the Contractor and approved by the Employer, which will include both temporary and permanent erosion control measures.

[CC- 213] The Contractor shall verify the effectiveness of erosion control measures based on results of a specific monitoring program. The Universal Soil Loss equation assessment, or other internationally recognised erosion quantification methods will be used as a means of quantification in this evaluation.

4.6.5 Sediment Control and Monitoring During River Works

[CC- 214] The Contractor shall prevent works near waterways, and in particular, shall prohibit:

- River ford crossings, by foot or by any type of vehicle, except in the case of special and specifically designed passage devices. The devices shall be adapted to the size of the watercourses and shall not be an obstacle to runoff or cause erosion.
- River channelling or river rectification.

[CC- 215] A buffer zone of at least 50 m from the edge of the riparian zone will be established for all support activities that do not need to be in the riparian zone to protect the river from pollution sources.



[CC- 216] In the case of works less than 50 meters from or in waterways (Shire River, perennial or temporary streams, other wetlands, ...), the Contractor shall include in its management plan specific measures limiting the re-suspension of sediments in the aquatic environment as well as site rehabilitation measures in the case of any river earthworks (material extraction and reuse, for example). These measures include:

- Riverbanks downstream from in-channel civil works will be protected from elevated turbidity in the river using appropriate stabilisers such as sandbags, plastic liners and/or coarse rock.
- Daily monitoring of the Total Suspended Sediment (TSS) upstream and downstream of the works (if necessary, by measuring turbidity, with the establishment of a relationship curve between TSS concentration and turbidity specific to the waterway) in order to continuously evaluate the performance of the installations (see water quality management).

[CC- 217] In the event of TSS values upstream of any site influences that already exceed the discharge limits set by the Employer, the Contractor shall assess the relative value of the discharge. In this case, the TSS discharge shall be less than 50% and 100% (increase between upstream of the worksite and 200 m downstream of the worksite) for the level 1 and level 2 non-compliance thresholds respectively. The levels of 50% and 100% can be adjusted after the Contractor's feedback and with the agreement of the Employer.

4.7 Environmental Flow Management

[CC- 218] The Contractor shall ensure that during construction the flow of the Shire River downstream will not be interrupted and not be significantly reduced compared to the baseline.

4.8 Materials Management and Spoil Management

4.8.1 Materials and Earthworks Management Plan

[CC- 219] The Contractor shall submit to the Employer, prior to the start of any operation requiring earth movements, a Materials and Earthworks Management Plan for the earthworks Working Areas detailing (i) the proposed areas to be excavated, the areas of the anticipated permanent and temporary spoil disposal areas, (ii) the characteristics of the deposits (height, slope, type of materials), (iii) measures to maintain or rehabilitate natural drainage, (iv) proposed erosion and sedimentation control measures during earthworks and for materials management, and (v) measures to rehabilitate deposits and extraction areas at the end of construction (type of proposed use, revegetation, erosion protection).

[CC- 220] The plan shall contain at least the following information:

- A location plan for the sites and a plan of the sites which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused, the type of material to be stored and the expected volume for each zone. Consolidation/compaction must be considered in the mass balance calculations.
- A materials movement flow chart showing the origin, their transit area if existing, the definitive destination of materials (topsoil, sand, aggregates, rocks, quarry run, spoil) used during the Works, including an estimate of the Project traffic generated by the movements from source to destination, during daily and night-time.
- Tracking methods to monitor materials movements, including transfer of loads on Site into stockpiles awaiting use (as appropriate) and final placement.
- Description of the excavated materials in terms of potential reuses and relative quantities involved by categories of materials, with a breakdown for each site.
- Gradient of slopes, material thicknesses, accesses, advance cuts and provisions to prevent soil erosion at storage areas.



- Materials flow chart shall highlight what are the quantities of topsoil required for the reinstatement of temporary facilities at end of the construction period, and from what site this topsoil will be taken for the reinstatement work.
- Temporary and definitive erosion management measures will be implemented in the deposition areas, per the Erosion and Sedimentation control plan.
- Groundwater protection to be considered in the Material Management Plan and all the related Project decisions made regarding the suitability for reusing the excavated soils and materials.
- Strict environmental controls around earthworks and related construction activities to avoid the development of suitable vector breeding sites.
- Planned measures for the rehabilitation of disposal area zones by zone according to their characteristics (location, owner, soil type, slope, etc.).
- Details of Contractor's Personnel involved with implementation of the Materials Management Plan.
- The contingency arrangements that must be put in place.

[CC- 221] The plan shall be prepared and submitted prior to movement of excavated soils and materials. It shall be submitted no less than 60 days prior to mobilization to the Site.

4.8.2 Excavated Materials Reuse

[CC- 222] Material excavated at the Site shall be re-used (such as for concrete formation, backfilling, and foundations) as far as their geotechnical properties allow as construction material (after screening or for unselected fill material) in order to minimize the volume being disposed. Excess spoil will be disposed of at designated and specially designed spoil disposal areas (Ref. § 4.7.7).

[CC- 223] It is the responsibility of the Contractor to determine if the chemical and geotechnical properties of excavated material meet relevant specifications for future end use such that they do not cause harm to human health or the environment. This includes the effect the excavated materials may have on the environment where they are to be reused. Biological factors e.g. presence of invasive species or noxious weeds, as well as the effects of any radioactivity should also be considered. Measures based on a suitable risk assessment should be taken such that there is no adverse effect or risk to humans, animals, or ecosystems. This includes impacts on water, air, plants or other soils.

[CC- 224] Specification for use of materials against which proposed materials will be assessed based on an appropriate risk evaluation or risk assessment at where excavated materials will be used.

4.8.3 Topsoil Management

[CC- 225] The Material Flow Chart shall indicate how the topsoil and vegetation taken from the reservoir areas below full supply level and from the other material storage areas will be re-used to rehabilitate temporary facilities outside of the reservoir areas.

4.8.4 Material Movement

[CC- 226] The materials moved shall, as far as possible, be moved a short distance and only once during the construction period in order to be stored directly and permanently.

4.8.5 Storage Areas and Protection of Movable Materials

[CC- 227] All excess materials shall be stored in the most environmentally friendly manner and in the least penalising way in terms of land use. The Contractor shall respect the identified storage areas and minimise their footprints.



[CC- 228] The Contractor shall protect temporary storage areas on their slopes with a synthetic cover. Temporary stockpiles in place for more than 60 days shall be protected against runoff erosion by (i) revegetation using fast-growing grass species, either by direct seeding or by hydro-seeding, or (ii) using other natural anti-erosion cover with prior approval from the Employer

[CC- 229] Deposit bases shall not be located too close to a riverbank. In addition, natural herbaceous or shrubby vegetation shall be maintained in this area to ensure a natural filtering role for runoff water before it reaches the river.

[CC- 230] As a safety measure (to avoid the risk of landslides), the deposit shall not exceed five meters in height, their slope shall not exceed 1.5H: 1V. The slope is crossed at a height of 3 m by a berm with a minimum width of 2 m and with a peripheral drainage trench and header drains where appropriate.

[CC- 231] For permanent backfill material stockpiles, the stockpile is shaped and compacted every 30 cm to ensure long-term stability.

4.8.6 Side Casting of Road Infrastructures

[CC- 232] Side casting during the construction of linear structures, such as access roads, will be permitted in the following conditions:

- For natural gradients with a slope <40%, the side cast materials are piled to create a slope of less than 2H:1V.
- For natural gradients with a slope >40%, to ensure stability, 3 m wide berms will be installed perpendicular to the slope and onto which the side cast material is deposited. Regular earthworks are carried out to maintain the form of the side case and the long-term stability of the side cast. The slope of the side cast, in general, does not exceed 3H:2V.

4.8.7 Spoil Disposal Management

[CC- 233] Spoil is defined as any earthen material that is surplus to requirements or unsuitable for reuse in fill and embankments (such as unsuitable rock and soil material) or material that represents a geochemistry hazard.

[CC- 234] The Contractor shall prepare and implement a Spoil Disposal Management Plan, as part of the C-ESMP, that details all measures the Contractor will implement during the Works to minimize the footprint, adverse socio-economic impacts and ecological effects, and to ensure long-term stability and control erosion while stockpiling the material excavated from the Site.

[CC- 235] The plan shall include the following:

- Spoil generated will be classified according to its geotechnical characteristics and engineering properties, e.g. virgin excavated natural material, inert fill, potentially contaminated material.
- Spoil strategy to: (a) Minimize the amount of spoil generated, (b) Maximise the beneficial reuse of spoil on Site and off Site based on its classification, (c) Manage the excavation, storage, transport reuse and disposal of spoil to minimise impacts and meet other environmental or social requirements.
- Spoil-generating activities, volumes and sources of spoil per work area.
- Locations of spoil disposal, off-site storage and re-use sites.
- Transportation of spoil.
- Storage of spoil.
- Potential E&S adverse impacts.
- Management measures and mitigation strategies.
- Long-term maintenance requirements.



[CC- 236] The main reservoir dead storage area will be the preferred option for the disposal of excess spoil. If spoil disposal areas are outside the main reservoir footprint, necessary permits from local authorities will be obtained.

[CC- 237] The practice of disposing of inert spoil from road construction by side-casting will be prohibited.

[CC- 238] For each proposed Spoil Disposal Area, the Contractor shall perform the required site investigations and engineering studies demonstrating:

- Mass stability and prevention of mass movement during and after construction.
- Drainage control to ensure safe transfer of flood waters.
- Maintaining river or stream flood capacity.
- Toe reinforcement and angle of slope for each material type.

[CC- 239] Groundwater contamination shall be prevented and considered in executing the spoil disposal.

[CC- 240] The spoil disposal area design must comply with Malawian requirements and government approval must be received prior to the start of disposal activities.

4.9 Quarries and Borrow Areas Management

[CC- 241] The Contractor shall prepare and implement a Quarry and Borrow Area Management Plan for areas to be exploited for rockfill material, aggregates and rip rap material as well as for the other borrow area (sand, gravel, laterite clay) that details all the E&S measures to be implemented for the operation of these sites.

[CC- 242] For each quarry and borrow area site, the Quarry and Borrow Area Management Plan shall include the following considerations:

- A plan showing the extent to the area to be developed.
- A method statement defining the proposed working methods.
- The proposed access and haulage routes between the quarry/borrow area and the destination for the extracted material.
- A justification for the quantities of material to be extracted, an estimate of the waste materials to be generated and disposal details for such waste materials.
- Details of the measures taken to minimise the quarry area and its visual impact on the surrounding area.
- Details of the measures to be taken for the long-term reinstatement of the quarry and borrow areas. These shall include re-establishment of vegetation, restoration of natural water courses, avoidance of flooding of the excavated areas, achievement of stable slopes, and avoidance of features which would otherwise constitute a risk to health and safety or a source of environmental pollution.
- Measures which are recommended to minimise the significance of each identified impact.
- Quarry faces and excavations shall be made safe, and buildings, plants, equipment, debris, and miscellaneous stockpiles of material shall be removed from the areas.
- Contour and level quarry surfaces to prevent water ponding, reducing the risk of drowning and water-borne disease.

[CC- 243] To avoid damage to habitats and reduce landscape effects, the Contractor will make all efforts and document these efforts to avoid and, if possible, minimise encroachment of the quarry and borrow areas above the two reservoir full supply levels.

[CC- 244] Materials, other than waste materials, extracted from quarrying operations under the Project shall be used exclusively for the Works.



4.10 Pollution Prevention and Control

4.10.1 Pollution Prevention and Control Plan

[CC- 245] The Contractor shall prepare and implement a Pollution Prevention and Control Plan as part of the C-ESMP to ensure compliance with national regulations and international good practice standards, including the World Bank Group General EHS. The plan shall detail all Site-specific measures the Contractor will implement during the Works to identify, drain and treat effluents generated on Site from the Works and to prevent pollution at the source.

[CC- 246] Effluents consist of liquid discharges, including infiltration, transporting a pollutant (dissolved, colloidal or particles). A pollutant is a given chemical compound at a concentration greater than the threshold values allowable for that compound.

[CC- 247] Pollution is the introduction of substances or energy into the environment, resulting in deleterious effects that endanger human health, harm living resources and ecosystems, and impair or interfere with amenities and other legitimate uses of the environment.

[CC- 248] The Contractor shall primarily focus on pollution prevention. For all activities involving chemicals on Site, the Contractor shall carry out a source – pathway - receptor assessment and document it. Measures shall be identified to prevent harmful substances from entering the pathway at the source. Measures also shall define the actions to be followed to prevent discharge to the environment if harmful substances do end up in the pathway.

[CC- 249] In accordance with good practice, the Contractor shall:

- Minimize the number of discharge points/outlets to the environment.
- List, locate, and characterise (flow, expected quality, discharge frequency) all sources of effluents and outlets in the natural environment.
- Obtain the necessary authorisations for effluent discharges and ensure discharges comply with Malawi regulations and GIIP.
- Not discharge any effluent by the Contractor, or the Contractor's activities, into water courses or soils without prior treatment and without monitoring of the treatment's performance to guarantee the absence of pollution.
- Describe in its plan all measures for treating discharges from all the discharge points, including a description of the treatment units (location, design of the installations, capacity, type of treatment, control of the efficiency of the installations in particular in case of important rainy events, quality control at the exit of the unit) and the expected results in terms of the quality of the discharge into the environment.

[CC- 250] The management of waste is treated in another plan.

[CC- 251] The plan shall be submitted no less than 60 days before mobilising to the Site.

4.10.2 Wastewater Treatment

[CC- 252] A conventional sewerage system with wastewater treatment shall be installed in all the Working Areas where wastewater treatment is required during the construction phase, especially in the Construction Camp.

[CC- 253] As far as possible, infiltration discharges into the ground will be preferred to surface discharges on the banks or directly into the Shire River.

[CC- 254] Discharges into the natural environment shall comply with Malawi regulations and the GIIP. The Contractor must use the GIIP for industrial wastewater treatment methods, such as those proposed in the IFC General EHS Guidelines.

4.10.3 Rainwater Management and Settlement Ponds



[CC- 255] Runoff consists of rainwater flowing on the surface of the soil and other technical surfaces at Project Areas. In the context of the Contract, runoff is considered an effluent unless demonstrated otherwise, as documented and substantiated by the Contractor and approved by the Employer.

[CC- 256] The Contractor shall construct, operate and maintain sufficient capacity for settlement ponds, with suitable oil traps and acid dosing to reduce pH at each point where contaminated water is discharged from the Working Areas.

[CC- 257] The Contractor shall construct, operate and maintain oil separators with suitable oil traps and acid dosing to reduce pH at each point where contaminated water is discharged from the Working Areas.

[CC- 258] The Contractor shall construct, operate and maintain settlement ponds with sufficient capacity for their purpose. Ponds shall be designed in order to ensure compliance with Malawian standards and good international practices for total suspended solids loads in discharges.

[CC- 259] All contaminated water runoff from work areas and excavations shall be discharged first into oil separators and then into settlement ponds to remove oil, sand, silt, cementitious materials, and other suspended matter.

[CC- 260] Ponds shall be designed in order to ensure compliance with Malawian standards and good international practices for total suspended solids loads in discharges.

[CC- 261] All contaminated water runoff from work areas and excavations shall be discharged into settlement ponds, to remove oil, sand, silt, cementitious materials and other suspended matter. The outflow from each settlement pond shall be arranged to prevent any floating oil from leaving the pond irrespective of the volume of water entering the pond.

[CC- 262] Ponds shall be watertight and subdivided so that sections can be cleaned while others are in operation.

[CC- 263] Natural groundwater and stormwater from areas outside the immediate area or the Contractor's activities must be prevented from flowing into the ponds. In this regard, it is particularly important to ensure that any diversion berms or drains protecting ponds constructed below ground are adequately maintained.

[CC- 264] Separate settlement ponds shall be constructed to collect surface water runoff from spoil areas, as applicable.

[CC- 265] In addition to measures planned to prevent sediment release into the environment, the Contractor shall ensure that:

- Drainage flows do not discharge onto agricultural land, wetlands or community water supplies.
- Rainwater pre-treatment units are sized, cleaned, maintained and accessible to ensure compliance with the effluent quality criteria defined by the Employer and to allow monitoring of performance.
- Runoff from workshops, parking areas and garages is drained and equipped with oil removal treatment to prevent pollution.
- Sludge resulting from the maintenance of oil separators, batching plant settlement ponds, and tunnel water settlement ponds is considered hazardous waste and shall be disposed of in accordance with the Waste Management Plan.
- Water from settling ponds (crushing plants, runoff water, etc.) is treated, and the Pollution prevention and control plan includes a description of the treatment units (location, design of the facilities, capacity, type of treatment, quality control at the outlet of the unit) and the expected results in terms of the quality of discharge into the environment.

4.10.4 Concrete-Rich Wastewater Management

[CC- 266] The Contractor shall specify measures for treating water from the washing of concrete mixers or concrete batching plants, including the description of the treatment units (location,



design of the installations, capacity, type of treatment, quality control at the exit of the unit) and the expected results in terms of the quality of the discharge into the environment. A readjustment of the pH (acid buffering) before discharge into the river will probably be necessary.

4.10.5 Industrial Water Management

[CC- 266] Industrial water includes water used in laboratories (in the presence of chemicals) or otherwise in contact with oils, solvents, metal surface treatment products, and polluted acids.

[CC- 267] Industrial water will be preferably stored in tanks, which the Contractor will send to specialised reprocessing units.

[CC- 268] On-site treatment may be envisaged, subject to the Employer's agreement.

4.10.6 Refuelling and Maintenance Areas

[CC- 269] The maintenance, washing, and refuelling of construction machines are strictly limited to areas defined for this purpose. These areas will be equipped with a concrete slab and peripheral drainage, evacuating runoff water through an oil separator.

[CC- 270] All platforms where generators, hydrocarbon storage tanks and refuelling stations are installed have impervious surfaces, are drained and equipped with an oil removal treatment to prevent pollution. For concrete platforms, run-off will be drained to a settling basin, where the pH will be buffered.

4.10.7 River Water Protection

[CC- 271] The Contractor is strictly prohibited to wash its vehicles in streams and rivers, including the Shire River.



4.11 Water Quality Monitoring

4.11.1 Water Quality Monitoring Plan

[CC- 272] The Contractor shall prepare and implement a Water Quality Monitoring Plan, as part of the C-ESMP, applicable to all surface waters, groundwater, and drinking water. The plan's aim is to ensure that the Works, and especially effluent releases, do not affect water quality and that water distributed to employees is potable.

[CC- 273] This plan will specify:

- Location of water quality measurement points on a map (GPS coordinates to be specified)
- Threshold values considered
- Parameters measured for each point
- Methods used, which shall be ISO, USEPA or similar
- Measurement frequency
- Persons responsible for measurements

[CC- 274] The plan shall be submitted no less than 60 days prior to mobilisation to the Site.

4.11.1.1 Measurement Points and Parameters

[CC- 275] The measurement points shall be defined by the Contractor to oversee potential environmental pollution. These points will include:

- Measurement points at effluent discharge locations.
- Measurement points upstream and downstream of all rivers crossing the Working Areas and upstream and downstream of discharge points.
- Measurement points on the Shire River upstream and downstream of the Project Area.
- Measurement points in drinking water treatment, storage and distribution network.
- Measurements of groundwater points in the different boreholes installed by the Contractor, including in the landfill area and community boreholes.

4.11.1.2 Measurement Frequency

[CC- 276] Water quality monitoring shall be performed at a variable frequency, from daily to monthly, depending on the sites, activities involved, and sensitivity.

[CC- 277] In the event of an incident or non-compliance, monitoring will take place daily until the results indicate that the pre-incident condition has been achieved.

4.11.1.3 Water Quality Laboratory and Equipment

[CC- 278] The Contractor shall provide the Environmental manager and their team with the means and skills to perform in-situ monitoring and laboratory analysis of the performance indicators. For that purpose:

- The contractor shall build and operate a laboratory staffed with a water quality officer to perform all the required analyses.
- Sampling and measuring equipment that complies with the relevant standards of the International Standards Organization (ISO) shall be made available to the Environment officers.

4.11.1.4 Water Quality Parameters and Indicators

[CC- 279] The physical and chemical parameters of the water that are monitored are those that are listed in the Malawi environmental regulations, or if these do not exist, the parameters are based on the recommendations of the present E&S requirements as below:



- Total coliforms, fecal coliforms, Escherichia coli, Enterococci,
- Sulfite-reducing bacteria including spores (if water undergoes filtration treatment),
- Revivable aerobic germ counts at 22°C and 37°C.
- Appearance, Color, Odor, Flavor, chemical and organoleptic parameters.
- Ammonia, Nitrates, Nitrites, TAC (Complete Alkalimetric Title),
- TOC (Total Organic Carbon) or KMnO4 oxidizability when hot in acid medium,
- Chlorides,
- Manganese (if demanganisation treatment),
- Sulfates,
- Organic carbon, BOD, COD
- Chlorophyll-a
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
- EPA Priority Pollutant Metals (PP-13*)
- Hardness (TH: Hydrotimetric Titer),
- pH,
- Conductivity,
- Temperature,
- Turbidity.

[CC- 280] For each parameter, the contractor shall detail:

- Guide/threshold values
- Measurement accuracy
- Measurement technique used
- Measuring instrument used
- Calibration procedure for measuring instruments

[CC- 281] As a minimum, the following indicators shall be monitored monthly during the construction phase:

- Organic pollution: BOD5, nitrates, phosphates, particularly for effluents from living areas and sanitation systems.
- Oils and grease, particularly for drainage water from mechanical activities, hazardous products storage (hydrocarbons), and wastewater from food preparation/consumption areas.
- Suspended matter in drainage water from anti-erosion activity areas and settlement ponds.
- Suspended matter and pH at the outlet of batching area settlement ponds.
- Bacterial pollution: faecal and total coliform presence in drinking water treatment, storage and distribution network.
- Groundwater pollution related to landfill sites: BOD5, COD, ammoniac nitrogen, nitrates, chlorine, zinc, chromium, lead, and mercury.
- The following parameters shall be measured in situ for all samples: temperature, pH, electrical conductivity, turbidity, and dissolved oxygen.

4.11.2 Effluent Discharge Monitoring

[CC- 282] The Contractor shall regularly monitor the effluent quality involving the following operations and facilities:

- Treated effluent from wastewater treatment plants (lagoons, septic tanks).
- Tunnel water.



- Settlement ponds related to batching plant activities and crusher plants.
- Settlement ponds related to stormwater at sites considered particularly sensitive.

[CC- 283] Drainage water from workshop sites, hazardous products storage sites and food preparation/consumption areas.

- River work sites, with monitoring of the solids content of water upstream and downstream of the works.
- Monitoring wells drilled for landfill control

[CC- 284] Effluent quality monitoring shall be performed at a variable frequency, from weekly to monthly, depending on the sites, activities involved, and sensitivity.

[CC- 285] In the event of an incident or non-compliance, monitoring will take place daily until the results indicate that the pre-incident condition has been achieved.

4.11.3 Surface Water Quality Parameters

[CC- 286] Surface water Environmental Quality Standards (EQS) are described in the following paragraphs and detailed in the table below.

4.11.3.1 Malawi Guidelines

[CC- 287] The water resources regulations, published in 2018 by the government of Malawi provide a legislative framework and guidelines to ensure the protection of surface and groundwater and the quality of drinking water in Malawi. Standards and guidelines for water quality and effluent discharge are included in the document. Limit values are given for each parameter as a value not to be exceeded - standard values - or as an indication - guideline values - for the following situations:

- Standards for domestic/sewage effluent discharges into the inland surface waters
- Standards for industrial effluent discharges into inland surface waters
- Standards for drinking water delivered from boreholes and protected shallow wells
- Standards for treated drinking water
- Guidelines for irrigation water
- Guidelines for recreational water quality

[CC- 288] Water from the Shire River and its tributaries is mainly used for irrigation of crops and for human use when dwellings are located far from boreholes. The limit values are the standards for treated drinking water and the guidelines for water used for irrigation.

4.11.3.2 International Guidelines

[CC- 289] As Malawi does not have published Water Quality Guidelines for protecting aquatic ecosystems, the surface water quality parameters were analysed against the Australian toxicant default guideline values. These guidelines are adapted for Australia, which has a warmer climate than Northern Hemisphere countries and is therefore better adapted to Malawi's environmental conditions.

[CC- 290] The 2021 WHO guidelines for recreational water quality were also used as reference values.



Parameter	Malawi std (1) DW_BH	Malawi std (2) Treated DW	Malawi std (3) Recreational Water	Malawi std (4) Irrigation class 3	Malawi std (5) Industrial Effluents discharged into inland SW	Aquatic Ecosystems- ANZECC guidelines (6)	WHO Recreational Water Guidelines
pH	[6;9.5]	[5;9.5]	[5;9]		[6.5-9]	[6.5;9]	
Electrical Conductivity (µS/cm)	3,500	[70,000-150,000]		[750-2,000]		<1,500	
Total Dissolved Solids (mg/L)	2,000	[450-1,000]		[252-1,400]	500		
Dissolved Oxygen (mg/L)						>6	
Dissolved Oxygen (%)						>80-90%	
Temperature (°C)					40		
Turbidity (NTU)	25	[0.1-1]	50		25		
Biochemical Oxygen Demand (mgO ₂ /L)					20		
Chemical Oxygen Demand (mgO ₂ /L)					60		
Total Suspended Solids (mg/L)					30		
Alkalinity (Carbonate (CO ₃ ²⁻)) (mg/L)					0.15		
Fluoride F ⁻ (mg/L)	6	[0.7-1]			2		
Chloride Cl ⁻ (mg/L)	750	[100-200]			1	0.003	
Sulphate SO ₄ ²⁻ (mg/L)	800	[200-400]			800		
Orthophosphate PO ₄ ³⁻ (mg/L)					0.15		
Nitrates (mgNO ₃ ⁻ /L)	45				50	10.608	
Nitrites (mgNO ₂ ⁻ /L)					1		
Ammoniacal-N (mgNH ₃ -N/L)		[0.2-1]			10	0.9	
Hardness on dissolved fraction (mg/L)							
Hardness on total fraction (mg/L)	800						
Boron (mg/L)				[1.33-2]		0.94	
Dissolved salts							
Calcium (mg/L)	250	[80-150]					
Magnesium (mg/L)	200	[30-70]					
Potassium (mg/L)		[25-50]					
Sodium (mg/L)	500	[100-200]					
Dissolved trace elements							
Iron (mg/L)	3	[0.01-0.20]					



Parameter	Malawi std (1) DW_BH	Malawi std (2) Treated DW	Malawi std (3) Recreational Water	Malawi std (4) Irrigation class 3	Malawi std (5) Industrial Effluents discharged into inland SW	Aquatic Ecosystems- ANZECC guidelines (6)	WHO Recreational Water Guidelines
Aluminium (mg/L)	0.5	[0.15-0.30]				0.055	18
Manganese (µg/L)	1,500	[0.05-0.10]				1,900	8,000
Selenium (µg/L)		[10-20]			Nil	0.011	
Dissolved heavy metals							
Arsenic (mg/L)	0.05	[0.01-0.05]	0.05		0.05	0.037	0.2
Lead (mg/L)	0.05	[0.01-0.05]			0.05	0.0034	0.2
Cadmium (mg/L)	0.01	[0.003-0.005]	0.01		0.01	0.0002	0.06
Chromium (mg/L)	0.01	[0.05-0.10]	0.10			0.0043	1
Copper (mg/L)	2	[0.5-1]			2	0.0014	40
Zinc (mg/L)	15	[3-5]			5	0.008	
Nickel (mg/L)	0.01				0.01	0.011	1,400
Mercury (mg/L)		[0.001-0.002]			Nil	0.0006	
Total heavy metals							
Chromium (mg/L)					0.05		
Bacteriological parameter							
Faecal coliform (CFU/100mL)	50	[1-10]					
Faecal streptococci (CFU/100mL)	0						
Monoaromatics and Oxygenates (µg/L)							
Benzene						950	200
Toluene						180	14,000
Ethylbenzene						80	6,000
m-xylene						75	10,000 (xylene total)
o-xylene						350	
(1) Standards for Drinking Water Delivered from Boreholes and Protected Shallow Wells, (2) Standards for treated drinking water. (3) Guideline for recreational water quality. (4) Guideline for irrigation water. (5) Standards for industrial effluents discharges into inland surface waters. (6) Aquatic Ecosystems-ANZECC guideline: Default guideline values for toxicant. Level of species protection: 95% (recommended for application for slightly to moderately disturbed ecosystems).							



4.11.4 Threshold Values for Wastewater Discharges

[CC- 291] The quality of wastewater discharges from construction worksites shall comply with Malawi environmental regulations or the World Bank Group General EHS Guideline discharge limit values, whatever is more stringent.

4.11.4.1 World Bank Group Threshold Values for Effluent Discharges

[CC- 292] The World Bank Group Threshold Values (EHS, 2007) apply to sanitary discharges.

[CC- 293] If the requirements of the Malawi regulations, World Bank Group threshold values, and the specific requirements in the following sections differ, the most stringent requirements apply, even if this leads to mixing standards for different parameters.

[CC- 294] Threshold values, inhibitory concentrations and yields are calculated on daily average samples (proportional to flow), in accordance with Malawi regulations and/or international standards. They are carried out on samples including the dissolved and particulate fraction (unfiltered, unsettled).

4.11.4.2 Rainwater Discharges

[CC- 295] Discharges from stormwater systems must comply with Malawian regulations and/or international standards for discharge into the environment (whichever is more stringent for each parameter).

[CC- 296] Wastewater discharged into stormwater systems (after pre-treatment) must comply with the criteria set out above.

4.11.5 Water Quality Monitoring Report

[CC- 297] The Contractor will submit to the Employer an effluent quality monitoring report (within the ESHS monthly monitoring report) monthly, including:

- The location of effluent discharge points in the environment (GPS coordinates).
- The location of water quality measurement points. At a minimum, the sampling stations shall include the effluent stream prior to discharge, then at 5 m and 10 m down the river or the stream to check for dilution effects. River water before discharge shall also be tested to understand to what extent discharges affect river water quality.
- For each measured discharge point, the water quality parameters analysed and the frequency of analysis, the average flow rates of discharged effluents, and the discharge frequencies and durations over the month.
- For each parameter, the type of measurement and analysis made (volume sampled, analysis equipment used, calibration, reference standard, place of analysis).
- The persons responsible for the measures.

[CC- 298] The report will need to reference Malawi regulatory values and IFC standards. If the reference values in the Malawi regulations and/or the IFC guidance values are unavailable, the WHO values or any other internationally recognised standard for defining non-compliance of discharges shall be applied.



4.12 Life Cycle Assessment and Carbon Footprint Reduction

4.12.1 Lifecycle Impact Management and Carbon Footprint Reduction Plan

[CC- 299] The Contractor shall prepare and implement a Life Cycle impact management and carbon footprint reduction plan. This plan shall be applicable for each stage of the engineering process:

- Detailed design phase
- Construction phase

[CC- 300] For each phase of the project, a Life Cycle Assessment (LCA) shall be performed with the following objectives:

- Identify the project's most significant impacts on GHG emissions or other LCA indicators, such as water footprint, resource uses, etc...
- Identify leverage solutions and indicate the benefits foreseen by each solution.

[CC- 301] For each phase of the project, the following topics must be covered and detailed:

- Greenhouse gas emissions evaluation
- Energy saving and efficiency
- Water saving and efficiency
- Fuel saving and efficiency
- Material use and reuse practices
- Recycling optimisation

[CC- 302] The plan shall be submitted no less than 60 days before mobilisation to the Site.

4.12.2 Greenhouse Gas Emissions Evaluation

[CC- 303] Before the start of the Works, the Contractor shall:

- Confirm or revise its provisional Greenhouse gas emissions (GHG) assessment of the construction works submitted at the tender stage.
- Present its LCA (Life Cycle Assessment) and GHG assessment tool to the Employer for approval. If the Contractor does not have such a tool, the Employer and the Contractor shall collaborate to prepare one before the start of the construction. The Employer shall approve the monitoring tool.

[CC- 304] The concept of GHG footprint as applied to the construction sector is defined as the total CO₂ and other GHG emissions through land clearance and consumption of energy, fuels, building materials (cement, steel, aluminium, etc.), transportation and other services necessary for the construction of the Project. It includes direct (energy consumption) and indirect (extraction of construction materials, transportation, other non-building activities, ...) emissions.

[CC- 305] The necessary input data to be collected by the Contractor are presented in the table below. The Employer could complement these requirements.

Table 4-2: Input data for GHG emission monitoring

Source type/location	CO ₂ /GHG emission source	Reporting units
Base camp and other buildings	Surface area of the base-camp structures (living quarters, common areas, offices), workshop areas, tertiary areas	m ²



Source type/location	CO ₂ /GHG emission source	Reporting units
	Electricity consumption of the base camp	kWh
Transport to/from the construction site	Number of km per person (averaged) in: gas-fueled cars, diesel-fueled cars, motorcycles, bus, train, mid-distance airplane, long-distance airplane	Km (per person) per type of transport
Fixed sources (combustibles and energy used by the Construction Project, except the base camp)	Electricity consumption	kWh
	Domestic fuel	L
	Gas	m ³
	Kerosene (helicopter use)	Minutes of helicopter flight time
	Other types of fuel to specify (H ₂ , biofuel, ...)	Appropriate units
Machine immobilization (emissions related to the fabrication of machinery)	Number of machines and number of hours of use: Small (<5T), Mid-size (5-10T), Big (10-30T), Very Big (>30T), Others (to specify)	Number of machines used, and number of hours used for each category of machine.
Waste	Recycled metal (assumption that metal can be and is entirely recycled)	Tons
	Recycled inert waste (reused excavation materials, for example)	Tons
	Stored inert waste (excavation materials not reused, etc.).	Tons
	Incinerated waste from buildings (if applicable), such as insulation.	Tons
	Dangerous waste (to specify type, quantity and type of storage/treatment)	Tons per type of dangerous waste
Earthworks	Loose soil	Volume (m ³) and transport (km) of each type of material and separated by site preparation and all other structures (powerhouse, dam, canals, .
	Excavation of underground rock	
	Excavation of aboveground rock	
	Backfill (sourced from the Site)	
	Backfill (sourced elsewhere)	
	Others (to specify)	
Concrete and bitumen	Reinforced concrete	m ³ of each type of material and for each structure: powerhouse, dam, intake, cofferdam, etc.
	Heavy concrete	
	Other concrete types (C25/30 CEM II)	
	Bituminous mix	Tons of each type of material
	Treated road binder soil	
	Any other type of concrete/bitumen	m ³ or tons
Metals (not including steel used for reinforced concrete)	Steel (separate galvanised, weak alloy, strong alloy, stainless, and non-alloyed)	Tons of each type of metal for each structure: turbine, pumps, gates, grids, cofferdams, ...)
	Cast-iron	
	Copper (not including alternator)	
	Aluminium (cables and other uses)	
	Sheet metal	
	Composite (for gates, etc.)	
	Other metals	
Other materials	Tons or m ² for each type of material and each structure (penstock, gates, cofferdams, ...)	



Source type/location	CO ₂ /GHG emission source	Reporting units
	Wood carpentry	m2 of building
	Wood (resinous) used for exterior shingling	m2
	Steel wool	Tons
	Steel tray cover	m2
	Synthetic insulation	m2
	Paint	m2
	High-density polyethylene (HDPE)	Tons
	PVC	Tons
	Other materials to specify	m2 or tons
Electrical equipment and auxiliaries	Alternator type and assembly area	Number of each type of alternator (Copper or Aluminium) and assembly area (France or World)
	Transformer type and assembly location	Type: Mineral oil / Copper or Mineral oil / Aluminium. Assembly area: France or World
	Electric auxiliaries	kW
	Mechanical auxiliaries	kW

[CC- 306] The Contractor will propose a plan to reduce GHG emissions and improve resource efficiency, reducing water, fuel, and energy consumption.

[CC- 307] The Contractor shall submit the Greenhouse gas emissions (GHG) provisional assessment and reduction plan at least 60 days before mobilization to the Site.

[CC- 308] The Contractor shall monitor the real GHG emissions monthly and submit this information in the ESHS monitoring report.

4.12.3 Resource efficiency

4.12.3.1 Energy Efficiency

[CC- 309] The Contractor will set up an Energy management program that will include the following elements:

- Identification, and regular measurement and reporting of principal energy flows within the Site;
- Preparation of mass and energy balance;
- Definition and regular review of energy performance targets, which are adjusted to account for changes in major influencing factors on energy use;
- where action shall be taken to reduce energy use;
- Regular review of targets, which may include comparison with benchmark data, to confirm that targets are set at appropriate levels.

4.12.3.2 Water Efficiency

[CC- 310] The Contractor will set up a Water management program that will include the following elements:

- Identification, regular measurement, and recording of principal flows within a facility;
- Definition and regular review of performance targets, which are adjusted to account for changes in major factors affecting water use (e.g. industrial production rate);
- Regular comparison of water flows with performance targets to identify where action shall be taken to reduce water use.
- Water measurement (metering) shall emphasise areas of greatest water use.



[CC- 311] The Contractor will minimize water consumption in all Working Areas, for instance by setting up the following measures:

- Monitor machine water use, compare with specification, and replace nozzles when water and heat use reach levels warranting such work.
- Water reuse: Common water reuse applications include counter-current rinsing, for example, in multi-stage washing and rinsing processes, or reusing wastewater from one process for another with less exacting water requirements. For example, bleaching rinse water is used for textile washing, bottle-washer rinse water is used for bottle crate washing, or even washing the floor. More sophisticated reuse projects requiring treatment of water before reuse are also sometimes practical.
- Water jets/sprays: If processes use water jets or sprays (e.g. to keep conveyors clean or to cool product) review the accuracy of the spray pattern to prevent unnecessary water loss on the construction camp.
- Compare daily water use per employee to existing benchmarks, taking into consideration the facility's primary use, whether sanitary or including other activities such as showering or catering.
- Regularly maintain plumbing and identify and repair leaks.
- Shut off water to unused areas.
- Install self-closing taps, automatic shut-off valves, spray nozzles, pressure-reducing valves, and water-conserving fixtures (e.g., low-flow shower heads, faucets, toilets, urinals, and spring-loaded or censored faucets).
- Operate dishwashers and laundries on full loads and only when needed.
- Install water-saving equipment in lavatories, such as low-flow toilets.
- Washing Machines: Many washing machines use large quantities of hot water. Use can increase as nozzles enlarge due to repeated cleaning and /or wear.

4.12.3.3 Fuel efficiency

[CC- 312] The Contractor will propose a Transportation plan/Traffic management plan that aims to minimize transportation to limit fuel consumption and associated greenhouse gas emissions. He will locate Working Areas, quarries, spoil disposal, batching plants, parking lots, and construction camps to minimize the number of vehicle trips per day and the kilometres travelled.

[CC- 313] The Contractor will favour vehicles with the lowest fuel consumption and, if possible, mobilize electric vehicles.

[CC- 314] The Contractor will set up an awareness-raising program on eco-driving targeting all the drivers on the construction site.

4.12.4 Material reuse

[CC- 315] The Contractor will favour using materials that have already been used and that can be reused in the future for other construction sites. This is especially true for construction camps, accommodations, furniture and equipment.

[CC- 316] In all its activities the Contractor will take care to integrate the issue of transferability/convertibility of the equipment into the technical choices made. Generally speaking, transferability implies making technical choices that are:

- Relevant and realistic, depending on the availability of suppliers and spare parts on the local/regional market, or with logistically easy procurement and a low carbon footprint;
- Consistent with the available know-how of local operators and the local logistics context, or that the equipment supplier can easily pass on as a contractual training clause appended to the supply contract;
- Optimised to meet the specific requirements of the local environmental and climatic context (humidity, sunshine, particulate load of water and air, etc.)



- Multi-purpose, to enable synergies to be developed in terms of employment or the re-use of equipment with other current or future sites in the area, with a view to partnerships or dismantling
- Durable: not requiring frequent replacement and with the best acquisition cost (including logistics) / lifespan ratio.

4.12.5 Recycling

[CC- 317] The Contractor will limit the use of plastic material and non-recyclable material. He will recycle all recyclable materials as per the Waste management plan.



4.13 Waste Management

4.13.1 Waste Management Plan

[CC- 318] The Contractor shall prepare and implement a Site Waste Management Plan as part of the C-ESMP. The plan shall detail all Site-specific measures the Contractor shall implement during the Works to identify, collect, transport and treat all waste produced on Site.

[CC- 319] The Waste Management Plan shall include at least:

- Waste reduction at the source.
- Diagnosis of the waste produced on the construction site (estimated volumes for each type of waste).
- The waste collection, recycling, and disposal procedures on the Construction Camp and in the construction site area, as well as the technical means implemented (sorting, temporary storage, evacuation if applicable, recycling if applicable, treatment if applicable...).
- The location and capacity of the final landfill to be built under WP1 on-site.
- The location and capacity of the waste service providers for recycled and hazardous waste management, including contact details.
- The methods of recovery selected and the Contractor's commitment to a percentage of recoverable waste with quantification in value of the activities carried out, particularly for copper, wood and steel.
- The specific management of medical waste from the infirmaries on the construction site and the Medical Center.
- Leachate discharge control measures.
- The loading/unloading of the waste transport trucks will follow the loading/unloading protocol implemented by the Contractor.
- Awareness programs for the employees on waste management.

[CC- 320] The plan shall be submitted no less than 60 days before mobilization to the Site.

[CC- 321] The plan shall follow the five-step EU Waste Management Framework or equivalent GIIP to be justified by the Contractor.

4.13.2 General Principles

[CC- 322] For any type of waste, the Contractor shall implement all necessary measures and, in particular, choose suitable purchasing and operating methods to reduce its waste production at the source. The Contractor selects suppliers with a voluntary and documented policy to reduce the volume and weight of packaging and to select recyclable or biodegradable packaging.

[CC- 323] The project worksites and adjacent lands will be kept clean of debris, garbage, fugitive trash, or on-site waste. Any meals delivered to construction workers, including local workers, regardless of where they are accommodated, will be made in the dining hall or dedicated eating areas in a way that minimizes uncontrolled waste disposal, proliferation of pests and rodents and food contamination.

[CC- 324] The Contractor shall identify, collect, transport and treat all waste produced on the Working Areas by its personnel, Subcontractors and visitors with in particular:

- the collection, sorting and temporary storage of its own non-hazardous waste awaiting its evacuation to a waste treatment and/or landfill centre;
- the recycling of recyclable material;
- the evacuation and treatment of all non-hazardous waste from the Construction Camp and Working Areas from their temporary storage point to a waste treatment and/or landfill centre;
- the collection, sorting, storage, and evacuation of its own medical and hazardous waste;



- the awareness-raising of all employees and subcontractors on the measures implemented for waste reduction at source, sorting and recycling.

The burning and incineration of waste are strictly prohibited, apart from medical waste in an incinerator. The Contractor shall ensure that this is respected throughout all the Working Areas.

4.13.2.1 Waste Categories

[CC- 325] The waste management plan shall include procedures, in accordance with local regulations, the ESMP and international good practice (IFC EHS Guidelines), for the handling, transportation, storage, treatment and disposal of waste according to its category:

- Non-hazardous waste (Group A): putrescible waste from camps and canteens, paper, cardboard, plastics, wood and vegetation produced during vegetation clearing (deforestation), inert construction or demolition waste (concrete, scrap metal, bricks, cinder blocks, etc.). Non-hazardous waste will be further divided into:
 - organic waste (that is putrescible and can be transformed into compost)
 - inorganic waste that can be partially recycled (paper, cardboard, plastic, ...)
 - metal waste that can be partially recycled (aluminium, metal blades, used cables, ...)
- Hazardous waste (Group B): Corrosive, explosive, toxic waste that poses a degree of danger to humans or the ecosystem. This will mainly include motor oils and hydraulic fluids, paint residues, solvents and resins, transformer fluids, hospital waste, septic tank sludge, and various concrete additives (to a lesser extent dangerous for the latter). Explosives used for excavations can also generate hazardous waste.

4.13.2.2 Waste Temporary Storage

[CC- 326] Before works commence, The Contractor shall establish a secure and centralised waste segregation and management area of sufficient size and according to international standards.

[CC- 327] Prior to removal from the Working Areas, waste is categorised and stored separately, depending on the level of danger, phase (liquid, solid, or gas), the waste management solution to be applied, and its potential for recycling or reuse.

[CC- 328] Waste is collected from each Working Area at the same rate that it is produced and is placed in temporary storage areas meeting the following criteria:

- Located at a distance of over 100 m from any natural sensitive area and over 500 m from any socioeconomic sensitive area (school, market, healthcare centre, water well or catchment area), with the exception of waste storage area in camps;
- Protected from moving machinery and vehicles but easy to access for regular collection;
- Located on a flat impervious surface to prevent infiltrations.
- Undercover for non-inert waste;
- Stored in containers of the appropriate size, tightness and level of resistance depending on the danger and phase (solid, liquid, gas) of the waste;
- Access to any temporary storage areas is restricted to the community and waste pickers.
- Liquid waste storage is equipped with secondary retention with a volume at least equal to the volume of the waste contained in the containers.
- Hazardous waste stored as per the requirements below.

[CC- 329] Duration of storage in temporary locations (time between two collections) is logged into the waste register for each temporary waste storage location.

[CC- 330] The Contractor shall implement measures for protecting waste storage areas from animals.



4.13.2.3 Waste Removal from Temporary Storage

[CC- 331] Waste is removed from Working Areas and transported to recycling, treatment and waste management facilities on a regular basis.

[CC- 332] The frequency of removal shall guarantee:

- No overflow from containers;
- No unpleasant odour or emissions which are dangerous for human health;
- No proliferation of insects, rodents, dogs or other animals which are harmful or dangerous for human health or which predate on small mammals and birds.
- Regular cleaning of containers and surfaces on which they are located (ensuring drainage of any cleaning chemicals to a bunded area and avoidance of soil or water contamination)

4.13.2.4 Waste Register

[CC- 333] The Contractor shall establish and maintain a waste register which is at the disposal of the Employer. This register shall record all waste management operations: production, collection, transport, and treatment. The following aspects are documented in this register:

- Type of waste, using the nomenclature specified in E&S requirements.
- Waste quantities.
- Name and address of the third-party waste management facilities receiving waste or parties taking possession of the substances no longer considered waste.
- Name and address of waste transport contractors.
- Planned waste treatment.
- Actual waste treatment.

[CC- 334] The contractor shall file and maintain at the disposition of the Employer the waste manifests for the collection, transport, treatment and/or elimination of waste.

[CC- 335] The waste register is established and available as of the Contractors mobilisation to any Project Area. This register will be archived for at least one year after the Taking Over Certificate for the Works is issued.

4.13.3 Non-Hazardous Waste Management

[CC- 336] The Contractor shall prepare and implement a detailed action plan showing the anticipated volumes of non-hazardous waste produced, the management, collection, and disposal procedures, the technical means implemented, the location and capacity of the final landfill destination, the contact details of the Malawian companies involved in waste recycling, and the awareness programs for the employees on this subject.

4.13.3.1 Waste Separation

[CC- 337] On the Site and all the Working Areas, a waste separation system with selective garbage cans allows the separation of metal products (including cans and tins) that are not polluted by hazardous products (oils, acids, paint, etc.), plastic products (bottles, packaging, etc.), glass bottles, wood, paper and cardboard, will be installed.

[CC- 338] All these products will, as far as possible, be offered for recovery by outside recycling companies. Insofar as the management of green waste (see below) shall promote composting, the Contractor will add putrescible waste to the green waste for composting.

[CC- 339] The Contractor will:

- conduct regular garbage collection and garbage cleaning.
- ensure a systematic sensitisation of camp residents for the efficient use of these garbage cans.
- carry out regular monitoring of the cleanliness of the camps and the waste storage sites.



[CC- 340] There will be an absolute ban on burning waste of any type, including plastics and oils.

[CC- 341] Concrete and gypsum debris that will not be used will be collected and integrated into the residual excavation material deposits.

[CC- 342] Sludge resulting from the maintenance of oil separators and settlement ponds is considered hazardous waste and will be collected and disposed of according to GIIP.

[CC- 343] Non-hazardous waste that cannot be recycled shall be disposed of in a landfill that the Contractor will have to build on-site, subject to approval by the Malawian authorities and the Employer.

4.13.3.2 Waste Recycling and Recovery

[CC- 344] The recycling/reuse of non-hazardous solid waste will be maximised, and this effort will be documented.

[CC- 345] The Contractor will apply a waste recycling and recovery strategy (recovering and reusing or selling) at least for metal, plastic, paper and organic waste through framework contract(s) with accredited third-party waste management facilities in Blantyre City that will be identified for the management of waste that can be reused and recycled. These third-party facilities will be audited to ensure compliance with GIIP and E&S requirements of the environmental permit.

[CC- 346] The Contractor shall consider waste heat recovery from generator stacks.

[CC- 347] The volumes of waste recovered in terms of quantity and economic results produced will be recorded by the Contractor in the Project monitoring documentation.

4.13.3.3 Landfill Construction and Operation

[CC- 348] A survey of the Blantyre municipal dumpsite (there is currently only one landfill in Blantyre) carried out in October 2023 has shown that it does not have the capacity to accommodate the non-hazardous waste that the project will produce and is not up to expected standards. It has been considered that the existing facilities are not sufficient to receive and dispose of the solid non-hazardous waste that the project's construction activities will generate.

[CC- 349] Consequently, the Contractor shall build and operate a landfill on the Site to manage non-hazardous waste. The technical specifications of the landfill are detailed in

[CC- 350] The landfill(s) developed by the Contractor shall comply with the following specifications:

- The facility is sized to accommodate the domestic non-hazardous waste production during the construction period and the waste production of the Operator's Village during the project's 30 years of operation.
- The landfill is located over 100 m from any sensitive natural area (including rivers/streams) and over 250 m from any socioeconomic sensitive area.
- The landfill is fully fenced, and access is always controlled. The community and waste pickers are restricted from accessing landfill sites or food composting areas.
- Regularly compacted and covered by soil to limit odours and the proliferation of insects and rodents.

4.13.3.4 Compost and Green Waste Management

[CC- 351] The Contractor shall ensure that no food products will be disposed of locally to prevent the community from collecting discarded products.

[CC- 352] The Contractor will build composting facilities to manage green waste and the fermentable portion of household waste. These areas will be dedicated to green waste and the fermentable portion of household waste. Sludge from septic tanks or any eventual sewage treatment plant will not be admitted in order to avoid any risk of transmission of pathogenic germs.



[CC- 353] At the end of the work, the compost will be mixed with the topsoil temporarily stored during stripping and reused for site rehabilitation. Neighbouring populations can also use the compost.

[CC- 354] Other green waste management measures are covered in § 4.3 Tree cutting, vegetation clearing and debris management plan.

4.13.4 Hazardous Waste Management

[CC- 355] The Contractor shall implement the following measures regarding the different types of hazardous waste.

- Septic tank sludge: will be evacuated to appropriate waste treatment centers.
- Used crankcase oils from machine and vehicle maintenance and floating oily residues from oil separators will be collected in 200-litre drums for recycling. The Contractor shall store the waste oil in watertight tanks (for which he is responsible). The drums shall be stored in a covered watertight area, delimited by a merlon whose height shall ensure the containment of a volume equal to 110% or the largest container or 25% of the inventory (if numerous small containers), whichever is greatest. The Contractor shall identify an acceptable recycling route (refinery) or disposal route (fuel for industries such as cement works, foundries). A waste oil handling log will be set up for waste tracking. The maintenance operations of the equipment will be centralised in appropriate areas for the collection of used oil and hydraulic fluids.
- Used chemicals: The main action to limit the management of used chemicals is to use low-toxicity chemicals and the minimum amount required for the proper functioning of operations. Used chemicals will be stored in cans or drums in the same retention areas as oils if compatible. Otherwise, they will be stored safely and protected from the weather. On-site reuse will be evaluated; if not, they will be returned to the supplier or to appropriate waste treatment facilities.
- Supplies: Batteries, vehicle batteries, oil filters, and printer cartridges generated on site will be sorted and stored in separate containers. The contractor will identify a disposal route and submit it for observation to the Employer.
- Medical waste: Medical waste will be stored in appropriate and secure containers at the medical centre and disposed of in an incinerator attached to the Contractor's medical facilities.
- Metal or plastic drums that have contained hazardous or toxic chemicals will be recycled (if recycling is locally possible) or returned to suppliers, in both cases at the Contractor's expense. In particular, metal drums shall not be given to the local population if they have contained toxic substances. If rinsing is used to remove residues, the rinsing water shall be treated with wastewater. At the end of their life, the cans shall be compressed to prevent uncontrolled reuse by the local population and evacuated to an appropriate waste treatment centre.

[CC- 356] All hazardous waste disposal routes will be evaluated by the Contractor and submitted to the Employer for non-objection. All final waste disposal facilities will need to be audited by the Contractor prior to signing contracts with them, to ensure that they are duly licensed by the relevant authorities and implement best practice management techniques.

4.13.5 Use of Waste Management Services

[CC- 357] The use of third-party waste management services is expected to concern only recyclable waste and hazardous waste. It is subject to a documented prior site inspection (audit) of the sub-contractor's facilities by the Contractor, to check the adequacy of the facilities for compliance with international good practice and guarantee the conformity with the provisions of the present specifications on waste.

[CC- 358] The choice of service providers who will take charge of recyclable and hazardous waste will be validated by the Employer on the basis of this audit.



[CC- 359] The provisions applicable to the Contractor regarding waste management also apply to any third-party waste management Subcontractor. The Employer reserves its right to inspect third-party waste management facilities and prohibit the Contractor from using the facilities if considered unacceptable.



4.14 Atmospheric Emissions, Dust and Noise

4.14.1 Air Quality and Emissions Management Plan

[CC- 360] The Contractor shall prepare and implement an Air Quality and Emissions Management Plan as part of the C-ESMP. The plan shall detail measures the Contractor will implement during the Works to identify and manage the source of air emissions and dust production resulting from the construction activities, including traffic along the access roads.

[CC- 361] Emissions refer to any discharge into the air of solid substances, aerosols, gases, radiation, or energy, whether point sources (e.g. incineration stack) or diffuse (e.g. fugitive dust emissions from road used by trucks).

[CC- 362] The Contractor shall ensure that equipment and vehicles used, and construction and transport methods adopted, will be maintained to be aligned with manufacturer standards and compliant with atmospheric emissions as specified in Malawi Law or the IFC Environment, Health and Safety Guidelines, whichever is the most stringent.

[CC- 363] If a thermal unit greater than or equal to 3 MW is installed for on-site energy production, the gaseous emissions (PM, SO₂, NO_x) shall comply with the IFC standards for emissions and stack height .

[CC- 364] The Contractor shall document the maintenance records for the Contractor's Equipment. The records will be in English and will be at the disposal of the Employer. The fleet of vehicles or equipment emitting combustion gases shall be maintained at the intervals and according to the methods specified by the manufacturer.

[CC- 365] The plan shall be submitted not less than 60 days prior to mobilization to the Site.

4.14.1.1 Dust Management

[CC- 366] On unpaved roads used by the vehicles and machinery of the Contractor:

- The Contractor shall take action to abate fugitive dust emissions generated by vehicles or mobile equipment in residential areas and on roads within the Working Areas perimeter. Dust suppression techniques shall be used across exposed areas during the dry season such as (i) the regular spray of water or any other non-hazardous dust suppression agents; (ii) the reduction of vehicle speed in and near sensitive receptor areas; (iii) the covering of loaded haulage lorries, if the need is confirmed by monitoring surveys. For that purpose, regular clearing, grading and maintenance of haul routes will be undertaken.
- The Contractor shall describe the road sections designated for the application of dust suppression agents and the methods and frequencies programmed.

[CC- 367] When storage, transport and handling of bulk materials is made in the open air and exposed to the wind, the Contractor implements the necessary dust abatement measures, including one or several of the following techniques: humidification of the surface, covering of the surface, or vegetation of the surface.

[CC- 368] Grievances from communities and workers related to dust received during construction will be resolved and where required the construction methods will be changed and additional protection measures will be defined.

4.14.1.2 Air Quality Monitoring and Threshold Emission Values

[CC- 369] The Contractor shall prepare an air quality monitoring plan indicating:

- Location of measurement points on a map (GPS coordinates to be specified)
- Parameters to consider (PM and dust) and threshold values
- Equipment to be used
- Measurement frequency
- Persons responsible for measurements



[CC- 370] Particulate matters (PM) and dust monitoring will be performed monthly with portable equipment for in situ measurement to monitor air quality, with additional monitoring when needed (e.g. following complaints) during construction.

[CC- 371] Settlements within 1km from the quarries will be the priority target of monitoring, but other targets shall be proposed by the Contractor.

[CC- 372] Air quality threshold values are those of the WHO, as reported in the IFC in its Environmental, Health and Safety (EHS) Guidelines, in the table below.

4.14.2 Noise and Vibration Management Plan

[CC- 373] The Contractor shall prepare and implement a Noise and Vibration Management Plan as part of the C-ESMP.

[CC- 374] [CC- 375] The Contractor shall use equipment and adopt construction and transport methods so as not to generate noise levels in excess of threshold values recommended by the Malawi regulations and IFC.

Grievances from communities and workers related to noise received during construction will be resolved and where required noise barriers will be installed, if the need is confirmed by monitoring surveys.

4.14.2.1 Night Works and Noise

[CC- 376] Night-time construction work (from 22pm to 7am, as defined by the WHO) will be avoided (where possible), specifically HGV traffic and blasting, to avoid sleep disturbances for the local residents and any impacts on wildlife and tourism in Majete Wildlife Reserve.

[CC- 377] Where night-time activities are absolutely required, the Contractor shall:

- Perform a noise risk assessment of the activities planned. Where noise levels are predicted to exceed WHO and IFC guidelines at nearest receptors (a receptor is defined as an area used for nocturnal socioeconomic activities (e.g. accommodation camps, residential areas, hotels, health centres), attenuation measures will be implemented and monitored, as feasible.
- Prepare a workplan including details on the period and duration of night work planned, noise level assessment results, mitigation measures deployed, to be submitted to the Employer so that information can be shared to Majete Wildlife Reserve and local community members.

[CC- 378] The Contractor shall conduct regular night-time noise monitoring at sensitive receptor locations. Monitoring locations will include the fence of Majete WR. Frequency will be determined according to the construction schedule and night-time planned activities.

[CC- 379] When noise-related grievances are recorded by MHPL or night-time noise monitoring results show non-compliance (noise level above 45 dB at sensitive receptor location), the Contractor shall implement appropriate mitigation measures, including installing temporary acoustic barriers.

4.14.2.2 Noise Monitoring and Threshold Emission Values

[CC- 380] The Contractor shall prepare a noise monitoring plan indicating:

- Location of measurement points on a map (GPS coordinates to be specified), with:
 - Working Areas
 - Construction Camp
 - Settlements surrounding the Project Area
 - Northern boundary of Majete Wildlife Reserve
- Noise level (dB) thresholds considered
- Measurement frequency



- Persons responsible for measurements

[CC- 381] Monthly noise monitoring shall be performed by the Contractor using a sound meter. If required (e.g. in case of grievance), punctual noise monitoring shall be performed.

[CC- 382] Threshold values are those retained by IFC in its Environmental, Health and Safety (EHS) Guidelines, with:

- Residential receptor: Daytime (07:00 – 22:00) an external ambient limit of 55dB(A).
- Residential receptor: Night-Time (22:00 – 07:00) an external ambient limit of 45dB(A).

[CC- 383] The Malawi standard M173:2005 'Acoustic Noise Pollution – Tolerance Limits' indicates that noise limits for residential receptors are 55 dB(A) daytime (06:00 – 21:00) and 45 dB(A) night-time (21:00 – 06:00), aligned with the IFC standards.



4.15 Human Rights

[CC- 384] The Employer grants to the respect of human rights an utmost priority and has put in place a Human Rights policy and procedures that shall be complied with at all times by the Contractor.

[CC- 385] In that view, the Contractor shall ensure on a continuing basis that it has in place and will have, and maintain in place, adequate and reasonable policies, controls, procedures and training designed to prevent, detect, assess, manage and remedy violations of Human Rights in its operations, among its workforce and supply chain, as per the Conditions of Contract.

[CC- 386] With that objective, the Contractor shall :

- Comply with all the ESHS standards and ESHS requirements of the Employer.
- Ensure that its subcontractors and suppliers comply with the ESHS requirements, as requested in § Subcontractors, supply chain management and audit.
- Ensure that Labour Rights of the Contractor personnel are respected at all times, and put in place a Workers Grievance Redress Mechanism.
- Ensure that no harm is done to local community members or human rights defenders, or to their assets and livelihood sources, either accidentally or voluntarily, by putting in place all necessary safety and security measures, including training its Security personnel on the Voluntary Principles on Security and Human Rights.
- Ensure that no pollution or degradation is caused to the environment and biodiversity through environmental protection measures, in order to guarantee the right to a healthy environment to local community members.
- Ensure that women’s rights are respected and that GBV/SEA/SH are prevented and managed adequately.
- Participate actively to stakeholder engagement and collaborate with the Employer when community grievances are caused by the Works
- Accept to receive human rights related trainings from the Employer or its partners.

4.16 Community Relationship

4.16.1 General principles

[CC- 387] As a general principle, the Contractor shall not disturb or interfere with the inhabitants of local communities close to or in the Working Areas, and shall respect their houses, crops, animals, properties, customs and cultural practices.

[CC- 388] The Contractor shall ensure that good community relations are maintained and that its workforce is committed to respect those principles through the integration of requirements in the Code of Conduct and Rules of Procedures.

4.16.2 Community relations plan

[CC- 389] The Employer has developed a Stakeholder Engagement Plan (Ref. 1). Part of this plan addresses the need for stakeholder engagement and community relation management during the construction phase.

[CC- 390] Based on that document, prior to the start of construction, the Employer and the Contractor will develop jointly a Community relations plan specifically for the construction activities and covering the whole construction period.

[CC- 391] The plan shall be elaborated jointly with the Employer 60 calendar days after Contract Award. The final version of the document shall be non-objected not less than 120 days prior to mobilization to the Site for non-objection by the Employer.



[CC- 392] The purpose of this document is to plan the interactions that the Employer and the Contractor will have with the authorities, other stakeholders (i.e. Majete Wildlife Reserve) and persons living near the construction site in order to ensure that the project obtains the support of these people, responds to their fears and concerns and manages any complaints they may have.

[CC- 393] The document shall incorporate a schedule of planned activities that may impact a neighboring community and shall describe:

- the principles of the relationship with communities (transparency, accountability, respect for culture and persons).
- the activities and phases that may impact neighboring communities.
- the approach for engaging and communicating with stakeholders in relation to the Works.
- the responsibilities for community interaction for each task and phase.

[CC- 394] The Contractor shall not have direct interactions with the local authorities and local communities without the Employer being at least informed, and preferably involved in these interactions.

[CC- 395] The Contractor shall appoint one or more persons responsible for relations with external stakeholders and local communities that will be in charge of participating to all activities requested by the plan along with the Employer's team.

[CC- 396] The plan shall include the following features:

- Communities will be informed of the start of any construction activities at least one week in advance.
- Communication about the works with:
 - Information on the start date of the works and the global schedule of the works.
 - Information on the start of major phases in the construction works at least one month in advance.
 - Notification on the authorized work hours and any expected impacts that could be triggered (noise, road traffic, dust, etc.).
 - Information on any works to be conducted in the river causing potential turbidity or flow modifications.
 - Information on blasting protocols.
- Communication on the Transport management plan with:
 - Information of the administrative authorities of the itinerary used by the fleet of vehicle and machinery.
 - Information on Project-related traffic schedules and activities.
 - Information on exceptional convoys.
 - Information on the main dam to regulating dam service road, access requirements and permits, traffic risks, etc.
 - Communication on traffic management measures to the head of local communities and will be disclosed in the villages located along the S137 (Chaswanthaka, inosi, Chilaulo, Lisangwi, kaliati, Jelasi, Juma, Simon, Gwadani, Chakhumbira, Chisembwere, Kunthembe, Makuni, Nkumba, Kadikira, Chikhandwe, Mkwewezalamba, Malire, Chikumbu, Magombo, Jelani, Mwasamba, Solomon, Botomani, Nkata and Singano) and the service road (Mpindo) to raise awareness on traffic-related risk during the construction period.
- Communication on the Employer Grievance Redress Mechanism and its functioning.
- Communication on the local employment plan, recruitment processes and employment opportunities, especially for women and vulnerable groups. Focus should be given on communications campaign to manage expectations and discourage spontaneous influx of job seekers, include the key message "no recruitment undertaken at the Project site or at



any of the contractor-led activities” and that anyone seeking a job should apply in their place of residence or send an application to the designated recruitment offices.

- Communication on the local content and procurement plan.

[CC- 397] Communication may be by telephone, one-on-one meetings, small group or public meetings, posters, radio announcements, newspaper prints, etc. The Contractor shall develop its own communication material.

[CC- 398] The Contractor shall also participate, as required by the Employer, to any engagement activity with:

- Majete Wildlife Reserve steering committee.
- The Multistakeholder Forum.

4.16.3 Management of external complaints

[CC- 399] The Employer’s has developed a Grievance Redress Mechanism that is compliant with IFC performance standards, including PS3 (Ref. 1). The Contractor shall follow the requirements of this mechanism, including on target times for resolution, and its E&S Team will be trained by the Employer on the matter.

[CC- 400] The Contractor and its employees are one of the entry points of the Employer’s Grievance Redress Mechanism, whether the grievance is directed to the Contractor, for matters related to the construction activities, or to the Employer, for matters unrelated to construction activities.

[CC- 401] Therefore, in case where the Contractor or any of its personnel receives external complaints directly, the Contractor shall register them in accordance with the Grievance Redress Mechanism (GRM) implemented by the Employer. The Contractor shall be responsible for:

- Informing the complainant on the existence of the Employer GRM, how it works and the location of the Complaints Management Office.
- Reassuring the complainant that the project will take his complaint into account and provide him with the contact details of the Employer claim officer (telephone contacts and email address) for an appointment.
- Transmitting as soon as possible the information to the Employer as well as the contact details of the potential complainant (name, date, village, telephone number).

[CC- 402] The Contractor shall participate to the grievance resolution process if it is one or the sole party that is the source of the grievance or that is accused of having caused harm. The Contractor shall propose solutions to close the grievance, and corrective actions to prevent the same grievance to be raised in the future.

[CC- 403] For that purpose, the Contractor shall give an open access to the Grievance Redress Mechanism to any stakeholder, that can be an authority, an NGO, an international organization, a lender or the complainant himself. The Contractor shall leave the scene where the grievance has its source untouched for investigations and give free access to all required documentation.

4.16.4 Payment of compensations

[CC- 404] If during the course of the grievance resolution process, it is confirmed and supported by clear evidence that the Contractor has committed a fault that led to damages to the environment, assets or to the complainant’s human rights, it is liable to financially compensate for the damages, with no threshold on the costs.

[CC- 405] In the case where the Contractor is responsible for damages to the environment or to the complainant’s human rights that have not led to the submission of a grievance through the Employer’s GRM but that has been witnessed by the Employer during its monitoring activities, the Contractor shall also be liable to pay appropriate compensations for such damages.



4.17 Cultural Heritage and Chance-Find Procedure

4.17.1 5.3.1 Cultural heritage management plan

[CC- 406] The Contractor shall prepare and implement a Cultural Heritage Management Plan that integrates a Chance Find procedure, as part of the C-ESMP. The Contractor has a special responsibility in the protection of archaeological resources, and the objective of this plan is protecting the archaeological resources that may be accidentally discovered during the construction.

[CC- 407] Chance find is defined as physical cultural heritage encountered unexpectedly during the Works.

[CC- 408] Cultural heritage is defined as:

- material forms of cultural heritage, including material, movable or immovable objects, property, sites, structures, or groups of structures of archaeological (prehistoric), paleontological, historical, cultural, artistic and religious value.
- intangible cultural forms such as cultural knowledge and practices of communities embodying traditional ways of life.

[CC- 409] The Plan shall be compatible with the Employer's Requirements, the requirements of the Ministry of Local Government, Unity and Culture, in accordance with the Convention for the Protection of World Cultural and Natural Heritage and consistent with IFC Performance Standard 8 and World Bank ESS8 - "Cultural Heritage".

[CC- 410] The plan shall be submitted to the Employer 60 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilization to the Site for non-objection by the Employer.

4.17.2 5.3.2 Chance-find procedure for archaeological artefacts

[CC- 411] During excavation activities carried out by the Contractor, there is a likelihood that archeological artefacts or bones, graves or cemeteries are found.

[CC- 412] Therefore, the Contractor shall put in place a chance-find procedure that will rest on the following activities and steps:

- The hiring of an expert archaeologist by the Contractor (full-time, part-time or on-demand but in any case rapidly available to avoid blocking the construction site for too long) who will be in charge of:
 - Training the ESHS manager and the person(s) in charge of excavation works on the recognition of the cultural heritage Malawi and the rapid identification of potential archaeological remains.
 - Intervening upon request of the ESHS manager whenever some artefacts are found.
 - Intervening systematically when it turns out that work will take place in areas potentially rich in cultural property, as identified during the pre-construction E&S surveys. This intervention might take the form of direct supervision of clearing and earthworks activities for their whole duration, or realization of on-the-spot archaeological searches.
- Awareness-raising targeting all site employees to respect the local heritage, local customs and socio-cultural specificities and the procedure to follow in the event of accidental discovery of an element of this heritage during the various phases of the construction activities. This awareness-raising shall be conducted by the archaeologist and targeted primarily at the personnel working on clearing and earthmoving sites.
- At least 15 days in advance, the Contractor will inform the Employer and the archaeologist of the perimeters planned to be stripped during construction works.



- In the event of an accidental discovery (object, building remains, skeletons and tomb...), the Contractor will stop his activity in the area concerned and will protect and secure, in a visible way (fence, tape, barrier), the discovered site. The Contractor will be responsible for the protection of the artefacts from thefts and if required, will place security personnel round the clock on the discovery site.
- The Contractor will immediately inform the Employer and the archaeologist. It is forbidden to disturb chance discoveries until an evaluation has been carried out.
- The archaeologist will conduct his visit and issue recommendations on the management of the artefacts (salvage excavation, removal, preservation in situ, etc.). The results of these visits will be communicated to the Contractor, the Employer and the Ministry of Culture.
- The Ministry of Culture will give instructions on how to proceed with the findings.
- If deemed necessary by the Ministry of Culture, an archaeological excavation will be conducted by the archaeologist. The Contractor will be responsible for the strict respect of the areas housing artifacts during these excavations. No activity will be allowed within the perimeter of the site until the archaeological excavation is completed.
- If deemed necessary by the Ministry of Culture, they will send a representative to the place of discovery within a reasonable time for consultation on the measures to be taken, in particular:
 - The removal of physical cultural artefacts deemed important ;
 - Continuation of excavation work within a specified radius around the discovery site ;
 - Enlargement or reduction of the area delimited by the company.
- In cases where archaeological excavations are done or if the Ministry of Culture has been mobilized, the Contractor shall produce a specific final report at the end of the excavations.
- The resumption of activity on the site will then be subject to the agreement of the Employer.

[CC- 413] The Employer may request, if necessary, the involvement of the traditional authorities in the monitoring of the sites and cultural, religious and historical resources, in which case the Contractor shall follow the instructions of these authorities.

[CC- 414] The Contractor shall allocate the necessary time and financial resources for the management of the archaeological heritage (marking, respect for the excavation area, etc.).

[CC- 415] In any case, the Contractor bears the cost of delays or work related to the discoveries of cultural heritage unless a claim is made as per the relevant clause of the Conditions of Contract.

4.17.3 Measures concerning intangible cultural heritage

[CC- 416] The Contractor shall be responsible for systematically sensitizing all project personnel under the Contractor's responsibility (employees, project manager, subcontractors, consultants, visitors) to respect for the culture, traditions and lifestyle of the local populations.

[CC- 417] The Contractor shall implement the Code of Conduct that encourages respect for local customs within the Construction Camp and that applies to all employees. The Contractor shall also sensitize employees who do not originate from the Project area to local cultural particularities and sensitivities through information sessions.



4.18 Access to Land and Land Acquisition

4.18.1 Temporary access to land

[CC- 418] Land assets required for the Project within the boundaries of the Site, encompassing Working Areas, shall be acquired by the Employer and access to it is given free of any encumbrances and free of charge to the Contractor, within the designated boundaries that will be shared with the Contractor prior to the start of the Works.

[CC- 419] For the avoidance of doubt, the implementation of any land acquisition and resettlement measures in relation to the Site is the responsibility of the Employer and is excluded from the Contractor's scope of work.

[CC- 420] The Contractor might need to access certain areas which are outside of the designated boundaries for the purpose of conducting temporary works.

[CC- 421] In those cases and whenever the Contractor need to access land assets that are outside the designated boundaries shared by the Employer, the Contractor is prohibited to enter the land, to start any form of works (including felling trees), and to perform any form of direct negotiation with landowners. Instead, the Contractor shall follow the Employer Land Acquisition Procedure and especially the Guide on Land Acquisition and Compensation (GLAC). This document will be communicated to the Contractor by the Employer in due time.

[CC- 422] As part of this procedure, the Contractor and the Employer shall perform the following steps in joint coordination:

- Identification of Contractor land needs: the Contractor shall define their needs in terms of land access or tree felling (exact location of activities or trees to be felled, proposed access roads routing) in writing and in a GIS (geographic information system) file (*.KMZ or *.SHP) so that the Employer can analyze the situation (land ownership, uses) and eventually propose alternatives (for access routing, for example).
- Information about the activities and temporary access to land in the local communities: the Employer shall perform community information on the works to be performed, accompanied by the Contractor personnel in charge of community relations.
- Establishment of pre-defined disturbance allowance and compensation rates for the work programme: the Employer shall indicate to the Contractor the appropriate valuation framework to be applied.
- Preliminary identification of landowners and land users: the Employer shall identify the landowners and land users in the proposed Working Areas.
- Obtention of agreement to enter the land : the Employer shall evaluate the potential for damages to crops and trees or other values through a Land survey and Crops and trees inventory form, and shall obtain signature by the landowners of a Land Access Authorisation Form. The Contractor shall delineate the land needed for the works.
- Payment of disturbance allowance and compensations (must be done before any Contractor activity on the land): the Contractor shall accept the affected asset inventory and associated valuation framework and pay the relevant allowances, as per the Employer's instructions.
- Signature of receipt by the landowners.
- Start of contractor's activities on the land : the Contractor co-sign a Land entry form (model to be provided by the Employer) with the Employer and the landowner.
- End of contractor's activities: the Contractor shall co-sign a Land exit form (model to be provided by the Employer) with the Employer and the landowner.

[CC- 423] In case where the Contractor's activities on the land generate more damages than what was anticipated during the Land survey and Crops and trees inventory form, the Contractor shall compensate for all those damages.



4.18.2 Permanent land acquisition

[CC- 424] It is not expected that there will be a need for land acquisition during the construction phase. However, in the event that land acquisition becomes essential during the course of the work, for various reasons, the Contractor is not authorized, in any case, to perform such acquisition.

[CC- 425] Instead, the Contractor shall request the Employer for a meeting to deliberate on further actions. The Employer bears the main responsibility for any land acquisition, ensuring all procedures are in accordance with applicable regulations and aligned with the project management plan.

4.18.3 Unintended damages to property

[CC- 426] The Contractor is responsible to fix or compensate financially for any unintended damages to properties caused by the construction methods, execution of the Works or the procedures used for execution outside of the designated project boundaries. This includes cases where the Contractor have not followed the requirements of the Employer Land acquisition procedure, as stated above.

[CC- 427] The Employer is informed of any damage caused to people, or the property of individuals, other than the Contractor's personnel, as soon as practically possible but no later than 24 hours, regardless of the severity of the incident.



4.19 Community Health and Safety

4.19.1 General site safety and public incident reporting

[CC- 428] The Contractor shall ensure that the construction works do not represent any safety risks for the general public, as per GIIP and the requirements defined in [6]. Working Areas shall be demarcated (Ref. § 4.1.2), signalled by warning signs, and access to them controlled, to avoid any accident. As stated in Ref. [1], the Employer is informed within one hour of any accident involving serious bodily injury to any third party, caused by the execution of the works or the behaviour of the personnel of the Contractor. The Employer is informed as soon as possible of any near-accident relating to the execution of the works which, in slightly different conditions, could have led to bodily injury to people, or damage to private property or the environment.

[CC- 429] The Contractor shall commit to not blocking accesses to the cemeteries, churches and other public infrastructure buildings during the construction activities as much as possible, considering the safety issues. Where existing access cannot be maintained, the provision of an alternative access route, subject to overriding health, safety, and security considerations.

4.19.2 Community safety on the service road

[CC- 430] The main dam to regulating dam service road shall be a private road managed through an entry checkpoint to allow only authorized persons and vehicles to access the Project Area. It will replace an existing dirt track that is used by local communities to reach S137 or to access their crops or other villages.

[CC- 431] The Contractor shall ensure that:

- Local community members are aware that the road is private and are informed on the safety risks on this road and instructions to use it.
- Local community members living in the villages surrounding the road are allowed to use it by foot, bicycle, motorbike or car. If need be, a permit system shall be put in place by the Contractor to clearly identify who is allowed to use the road.
- The road is equipped with traffic calming measures such as speed bumps, and adequate signage, and drivers are properly trained on driving behaviour on this road. Regular speed control shall be implemented and if required, flag men will be posted at dangerous locations.
- Access is controlled and unauthorized persons will not be allowed to use the road. Majete Wildlife Reserve personnel shall be delivered access permits for the purpose of poaching prevention. Regular patrols are conducted by the Contractor with the same purpose.

[CC- 432] The Contractor shall also set up a bi-daily free bus transport system from the regulating dam up to the S137, to transport authorized community members and avoid them walking on the road. This measure shall greatly reduce the risks of traffic related on this road.

4.19.3 Access to the Shire River during the Works

[CC- 433] During the construction phase, public access to the Shire River and regulating reservoir will be forbidden in the river reach where the Works are performed for safety reasons. This access restriction will be enforced by the Contractor through a permanent security control. The river reach down to the regulating dam shall be authorized for residents living along the Service Road, using the same permit system as described above.

4.19.4 Support to Employer's community health and safety plan

[CC- 434] The Employer shall prepare and implement a Community health and safety plan. Such plan addresses the risk of increased disease and epidemics affecting the populations around the



construction site due to social influxes (hundreds of employees, subcontractors, job seekers). In addition, it aims to ensure the safety of local communities during the construction phase.

[CC- 435] For the health-related aspects, the Employer will work with a NGOs qualified in health management in the construction phase for:

- Carrying out prevention and awareness actions for health, environmental and personal hygiene, including discarding of waste in the villages in the project's area of influence due to the migratory flows that the construction site will generate;
- Carrying out prevention and awareness actions in the villages in the project's area about the risks of prostitution, human trafficking, and other forms of illegal trafficking;
- Carrying out epidemiological monitoring of STIs and HIV/AIDS among the volunteer neighboring populations in the villages near the Project;
- Sensitization of the employees and populations of the Project Area on hygiene, sexual risks, distribution of condoms and free STI screening;
- Intervene with sex employees operating near the construction site and offer them awareness, distribution of prophylactic means and screening.

The Contractor will be requested to participate to the implementation of some of these activities, on a voluntary basis and as part of its CSR commitments.

In addition, the Employer will organize jointly with the Contractor the following activities:

- Awareness campaigns with local communities, including educational awareness sessions in local schools near the S137, to ensure they are aware of construction traffic related risks and how to use the road safety features, traffic rules, road signs, pedestrian safety, bicycle safety, and safe school bus behavior. The Contractor will be requested to delegate resources to these activities.
- Awareness of the community leaders in villages around the reservoirs and along the S137 road before construction starts on the risks associated with the Project's Employment Policy, employment opportunities, and conflict arising from the distribution of the Project benefits.
- Awareness and information sessions will be developed and conducted in communities, with a specific focus on cattle herders, fishers and children and other stakeholders on access to the Project site and specific risk areas.
- Awareness-raising on the measures planned by the Contractor. Present the plan for the establishment of safety buffer zone around felling operations as long as the clearing operations progress: physical delineation on the ground and warning signs, control during cutting operations.
- Education/public outreach on the dangers of unauthorised entry to dams and TLs construction sites, potentially dangerous equipment and why access restrictions must be respected. For that purpose, the Contractor shall:
 - Develop brochures, flyers and posters that illustrate common construction site hazards, safety tips, authorised access routes and emergency contact information.
 - Encourage the public to report any safety concerns promptly
- Regular community meetings on safety and construction hazards during the construction works.

[CC- 436] Any initiative the Contractor will want to take on the topic of Community health and safety that is not covered by the Employer Community health and safety plan shall be submitted to the Employer for approval before being organized.

4.19.5 Management of Project-induced in-migration

[CC- 437] The management of Project-induced in-migration is mainly the responsibility of the Project Owner. However, the Contractor has responsibilities in:



- Prevention of social influxes through local recruitment and workers' rotation practices;
- Monitoring and reporting;
- Liaising with the Employer, communities and local authorities.

[CC- 438] In order to limit the development and installation of a population resulting from spontaneous migration around the Project area and along the S137, the Contractor shall implement the following preventive measures:

- A local recruitment policy aligned with national and Lenders' requirements, that will:
 - Define local employment objectives and targets;
 - Prohibit on-site recruitment;
 - Establish workforce recruitment centres in Blantyre City and Zalewa;
 - Maximise the accommodation of the workforce on the accommodation camp. However, for those who cannot, develop pick-up points and a transport service;
 - Communicate this procedure widely.
- A recruitment policy banning any recruitment at the camp, or any of the construction or work sites, including along the road and transmission line corridors will be developed, implemented, communicated/advertised and enforced. Regional employment centres located at distance from the Working Areas will be established (e.g. Blantyre, Zalewa) The number and location of these employment centres will be approved by the Employer.
- The transportation of local community members to the recruitment centres shall be arranged by the Contractor, as stated in [8].
- The surroundings of the Construction Camp shall be made inaccessible for spontaneous installations. The Contractor shall implement appropriate measures to achieve this objective (e.g., distance from roads, reinforced control by security personnel...). A partnership framework between the Employer, the Contractor and the local authorities will be signed to define the attitudes to be adopted in the event of the development of illegal constructions on the periphery of the Project area, giving priority above all to prior information on the risks incurred in the event of illegal installations and complying with the Security personnel management plan. In addition to these preventive measures, the Contractor shall cooperate fully in identifying and informing the Employer and the competent local authorities on the presence of new infrastructures in the vicinity of the Project and Working Areas. The local authorities will then check the legality of the reported installation and if necessary, evacuate it in using a strategy signed in agreement with the Employer.

[CC- 439] To limit the negative effects of having a large workforce in the Project Area, the Contractor shall ensure that:

- Adequate services and entertainment will be developed on site to encourage workers to stay in the camps.
- Its personnel are not allowed to leave the Construction Camp at night or on weekends without permission from the security manager without a written permission from the Camp manager. Workers must have an acceptable reason and their intended activities will be recorded for compliance check.
- Visitors at night shall be prohibited.
- A majority of the workforce can be and is accommodated on the Construction Camp.
- Free daily meals are offered to its personnel prepared by its catering services. This will limit the installation of food service providers in the vicinity of the Project Area. In early phases of Works, if pioneer camps or fly camps are established, the Contractor shall limit the procurement of food for the workforce from community-based vendors or support specific small businesses to supply these camps through assurance of adequate food hygiene, food preparation, management of bushmeat and disposal of food products of food waste.
- The presence of workers' families in the Construction Camp shall be prohibited.



- The regular return of personnel to their homes on a regular basis, as stated in [8].

[CC- 440] The Contractor shall ensure coordination with the local police to manage security issues and criminality resulting from Project-Induced In-Migration.

[CC- 441] The Project-induced in-migration shall be monitored by the Contractor in collaboration with the local authorities and Police in each of the working sites' neighbouring villages, i.e. GVH Feremu and GVH Kaliati. The Employer will form a Multistakeholder Forum through which to develop a shared vision of influx issues and management and to promote (i) sharing of information; (ii) understanding of the roles and responsibilities of stakeholders; and, (iii) coordination, collaboration and partnership in planning and the design and delivery of development interventions and influx management programs. The Contractor shall participate to this forum whenever requested by the Employer.

[CC- 442] Subsequent actions may be requested from the Contractor by the Employer and/or local authorities. The Contractor shall implement them accordingly.

4.20 Community Development and CSR Actions

[CC- 443] The Employer will put in place a Community Investment Plan targeting the communities that are located within its area of influence. This plan is under preparation and will focus on strategic areas that are the most relevant to the project, the Employer and its partners.

[CC- 444] The Contractor is allowed and strongly encouraged to plan for an annual budget from its own CSR program that would contribute to this plan, or to propose its own community development actions. However, any proposal of financial contribution to the Employer Community Investment Plan or Contractor community actions shall be approved by the Employer, and shall be aligned with the strategic areas identified in the Community Investment Plan.



4.21 Local employment and skill development

4.21.1 Local Content

[CC- 445] Local employment and local content requirements seek to promote increased local participation by employment of locals and by directing the use of local companies in the procurement of goods and services, employment of locals and the use of local raw materials. The ultimate objective is developing local skills and capacity and local supplier competitiveness and participation in an industry. Other objectives are to:

- reduce inequalities faced by domestic companies in relation to foreign companies,
- increase the participation of national industry in specific sectors of economic activity,
- improve national technological development,
- create job opportunities for nationals/locals to improve their personal income,
- support economic diversification,
- promote intersectoral linkages.

4.21.1.1 Local Content Requirements

[CC- 446] For the purpose of this project, the term Local Content encompasses the sourcing of goods and services:

- From the three districts within the project area of influence as defined in the ESIA namely Balaka, Blantyre, and Neno: any goods and services sourced from Malawian companies established in these districts will be qualified as “Community Content”.
- From Malawi: any goods and services sourced from Malawian companies established in Malawi will be qualified as “Local Content”.

[CC- 447] The target for local content is set at 30% in volume or value to be subcontracted to Malawian companies. Preference is given by the Employer to local content in volume rather than in values, to encourage skills transfer to Malawian companies.

[CC- 448] The Contractor shall source an appropriate mix of locally (at district level) and nationally produced goods to allow local project benefits while reducing risk of overcrowding and price hikes for local consumers.

4.21.1.2 Local Content and Procurement Plan

[CC- 449] The Contractor shall prepare and implement a “Local content and procurement plan” covering both local and community content, to explain how it intends to maximize the use of locally and nationally services, goods and materials to the extent that these are available in the country in the required quantities and qualities and to reach, when possible, the 30% target.

[CC- 450] The objective of the local content plan shall be to present activities the Contractor will implement to reach the target, covering but not limited to:

- More detailed studies of the local market and local companies including quantity, quality and HSE assessments with interviews and visits to companies.
- Recruitment of a procurement specialist in charge of local content achievements.
- Constitution of Local Supplier Databases with the companies graded according to their abilities.
- Procurement processes that are targeting companies within the local and community content spheres as a priority, for instance through:
 - Simplified tenders to allow smaller companies to bid
 - Serial contracts or framework agreements
 - Unbundling contracts so that smaller companies can bid
 - Prompt payment regimes with reduced frequency (15-day payment regime)



- Reservations/set asides (the whole or a proportion of the contract value may be 'set aside' for implementation by local contractors).
- Skills transfer and capacity-building actions targeting companies within the local and community content spheres. This can include provision of mentoring services to targeted contractors.

[CC- 451] The plan shall be submitted to the Employer 30 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilization to the Site for non-objection by the Employer.

4.21.1.3 Monitoring of performance

[CC- 452] The Contractor shall also ensure it is monitoring its local content performance, reporting monthly to the Employer on indicators such as:

- Number / % of local suppliers in Local Supplier Databases
- Number / % of contracts awarded to local suppliers (local procurement as a percentage of total procurement) distinguishing "community content" and "local content"
- Financial value of contracts executed with local suppliers distinguishing "community content" and "local content"
- Value of investment in local industry / manufacturing

[CC- 453] The list of indicators to be reported on shall be proposed by the Contractor and approved by the Employer.

4.21.2 Human Resources Policy

[CC- 454] The Contractor shall prepare a two-page document listing all its commitments in terms of local employment, women employment, skill development, respect for labour rights including International Labour Organization (ILO) conventions, and general human resources management including prevention of GBV/SEA/SH and harassment, in alignment with the present requirements.

[CC- 455] This policy shall be publicly available, communicated to each employee upon recruitment and displayed on Site at strategic locations.

4.21.3 Recruitment Plan

[CC- 456] The Contractor and its subcontractors shall develop a recruitment plan for its personnel for the duration of the Works, that contains the following elements:

- Workforce mobilization plan.
- Local workforce capacity assessment.
- Recruitment processes and job application procedures.
- Priority recruitment plan:
 - Malawi nationals.
 - Project-affected persons employment program.
 - Local employment program.
 - Women employment program.
 - Minority or vulnerable persons employment program.
- Local skill development and training program.
- Employment monitoring.

[CC- 457] The Labour management plan shall comply with Malawi legislation, the international guidelines outlined in the present Employer's Requirements.



[CC- 458] The plan shall be submitted to the Employer 30 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilization to the Site for non-objection by the Employer.

4.21.3.1 Skill Level Definition

[CC- 459] The following skill classification (derived from ILO) shall be applied when recruiting and monitoring the workforce on the construction site. This information shall be available for each position opened by the project, included in the job descriptions, and the Contractor shall be able to report monthly on the number of employees it counts based on these skills levels.

Table 4-3: ILO Skill Classification

Level	Description
Skills Level 1	Performance of simple and routine physical or manual tasks. Use of hand-held tools such as shovels, simple electric tools: vacuum cleaners. For some jobs, basic skills in literacy and numeracy may be required.
Skills Level 2	Involve performance of tasks such as operating of machinery and electric equipment: driving vehicles, maintenance and repair of electrical and mechanical equipment and manipulation, ordinary storage of information. Ability to read information e.g., safety instructions to make written records of work completed and accurately perform simple arithmetical calculations is essential. Require relatively advanced literacy and numerical skills. Knowledge and skills required for competent performance are generally obtained through completion of first stage of secondary education which may include specialized vocational education and job training e.g., bus drivers, secretaries, accounts clerks, sewing machinists, dressmakers, sales assistants, police officers, hairdressers, electricians, motor vehicle mechanics.
Skills Level 3	Involve performance of complex technical and practical tasks that require an extensive body of factual technical and procedural knowledge in a 4-31 specialized field e.g., ensuring compliance with health and safety and related regulations, preparing detailed estimates of quantities and costs of individuals and labour required for specific projects; coordinating, supervising, controlling and scheduling activities of other employees. Require a high level of literacy and numeracy. Knowledge and skills required for competent performance are usually obtained as a result of studying at higher education institution for a period of 1-3 years following completion of secondary education e.g., shop managers, medical laboratory technicians, legal secretaries, medical radiographers, computer support technicians, broadcasting and recording technicians.
Skills Level 4	Involve performance of tasks that require complex problem solving, decision making, and creativity based on an extensive body of theoretical and factual knowledge in a 4-31 specialized field e.g., analysis and research to extend body of knowledge in a particular field, diagnosis and treatment of diseases, imparting knowledge to others, design of structures or machinery. Require extended levels of literacy and numeracy sometimes at high levels. Higher education for a period of 3-6 years leading to the award of first or higher degree.

4.21.3.2 Workforce Mobilization Plan

[CC- 460] The Contractor shall submit a plan indicating:

- The number and type of positions to be created during the whole construction period.
- A detailed schedule of workforce recruitment disaggregated per month identifying the expected peak period of employment.
- Details on the mobilization of foreign personnel with a list of positions and skills levels to be filled by these personnel.
- The types of contracts that will be offered (fixed-term contracts, permanent contracts, etc.).



4.21.3.3 Recruitment Processes and Job Application Procedures

[CC- 461] The Contractor shall describe which recruitment processes and job application procedures it intends to put in place for the various positions to be filled, including for project-affected persons, local personnel, women and disabled persons, and foreign personnel.

[CC- 462] The Contractor shall state if it intends to use third party recruitment agencies, in Malawi or abroad, to recruit its employees. The Employer reserves the right to audit such third-party agencies, including abroad.

[CC- 463] The recruitment process shall comply with the following requirements:

- In order to prevent outsiders from approaching and settling in the Project Area, recruitment at the Project Area, including at the entrance gates of the camp, or any of the construction or work sites, including along the road and transmission line corridors, is prohibited. This policy will be implemented, communicated/advertised and enforced by the Contractor.
- Regional employment centres located at distance from the Project Area will be established (e.g. Blantyre, Zalewa). The number and location of these employment centres will be approved by the Employer.
- The Contractor shall ensure that all recruited employees are above 18 years old.
- The Contractor shall not accept from any applicant or Personnel any amount of money or in-kind gift to secure a job on the Project.
- The Contractor shall cover all recruitment and processing fees, costs, and expenses, including those associated with travel for interviews and skill testing or securing identity cards, police checks, or medical examinations.
- The Contractor shall not require candidates or Personnel to participate in any form of forced or mandatory savings in order to recoup employment costs associated with recruitment or other services, including by third party agencies.
- The Contractor shall ensure transparency of the recruitment process and measures to ensure equal opportunities for all personnel subject to adequate skills.
- The Contractor shall accept to collaborate with the Employer for the recruitment of local employees.

4.21.3.4 Local Workforce Capacity Assessment

[CC- 464] Before the construction starts, the Contractor shall conduct an early 'skills versus needs' local workforce capacity assessment to identify challenges and opportunities to reach the local employment targets set in in these specifications, and add needed measures to make sure that local employees have the necessary skills to be recruited, to undertake their tasks safely and in compliance with project ESHS standards.

[CC- 465] The assessment will include:

- Baseline assessment of local workforce skills and qualifications;
- Forecast of employment needs of the Contractor and its subcontractors including skills specifications, as detailed in the Workforce mobilization plan;
- Identification of positions that could be filled by local persons and the skill level, levels of education (primary, secondary, etc.) and skill development/training required to be potentially recruited on the Project.
- Assessment of local skill development/training needs (gap analysis) to meet project requirements and the skills desired by local communities over the long term (i.e. post-construction);
- The anticipated skills shortages in the local workforce, if any;
- The training program to be deployed by the Contractor to improve the skills of the local workforce and their employability;
- The commitment of the Contractor to reach the local employment targets, or requests for waivers if such targets are not achievable.



4.21.3.5 Priority Recruitment Plan

[CC- 466] In order to maximize the project benefits and address stakeholders and local communities' expectations, the Contractor is also requested to prepare up a priority recruitment plan targeting specific categories of individuals, as detailed below.

A Malawi Nationals

[CC- 467] The Contractor shall use reasonable efforts to ensure that all positions are granted to Malawian citizens and that 100% of total working hours come from Malawian personnel recruited locally, regionally or nationally.

[CC- 468] Nonetheless, the Employer recognizes that this might be difficult to achieve and that the appropriate skills might not be available at the national level, or that the Malawian nationals with required skills might not be willing to work on the project for various reasons.

[CC- 469] Therefore, the Contractor is allowed to bring in foreign personnel from other countries only for semi-skilled to skilled positions, after obtention of a non-objection from the Employer upon provision of evidence that the positions dedicated to foreign personnel are not available in-country. It is prohibited for the Contractor to bring in foreign personnel for unskilled positions.

[CC- 470] The list of foreign personnel that the Contractor wishes to mobilize shall be submitted as part of the Recruitment Plan for non-objection by the Employer.

B Project-Affected Persons Employment Program

[CC- 471] The Contractor shall aim to hire for unskilled positions as a priority from households of the Project-Affected Persons (PAPs), based on individual lists that will be communicated by the Employer to the Contractor.

C Local Employment Program

[CC- 472] Local employment is defined as the number of positions actually allocated to people residing in the local area, as defined below.

[CC- 473] The Employer has conducted a preliminary assessment of the availability of unskilled, semiskilled and skilled labour force with the local area as defined above.

[CC- 474] The assessment has allowed to set a target for local employment: 100% of the unskilled personnel and of the total working hours will be given in priority to local residents, whereby local is defined as the persons residing for more than one year in the Districts of Blantyre, Neno and Balaka.

[CC- 475] In order to maximise the efficiency of the local recruitment program, the Contractor shall commit to:

- Collaborate with the Employer to communicate broadly to the local population on the priority recruitment plan, local employment program, job opportunities, recruitment and job application procedures, through regular meetings and information brochures.
- Advertise all job vacancies locally and in English/Chichewa, whatever the skills required.
- Assist local residents in applying for jobs.
- Provide regular (at least monthly) and sufficient bus transportation to local residents to the Project Recruitment Centres.
- Review on a regular basis the assessment of local workforce capacity.
- Maintain a database of Local Residents interested in employment or skills development activities.

D Women Employment Program

[CC- 476] The Contractor and its subcontractors shall respect the Gender Equality Act in its recruitment activities and actively promote the employment of women. It shall use its best efforts to ensure and document that a minimum of 30% of the total working hours are worked by women.



[CC- 477] The Contractor shall set up dedicated recruitment strategies, such as reserving a portion of jobs for women, encouraging women applications through various IEC activities targeting women, or raising awareness of managers on the importance to employ women.

[CC- 478] The policy of assistance with daycare for young children is a recognized tool to stimulate women's professional activity. The Contractor will highlight its strategy to support the care of young children: support for the installation of daycare / preschool, financial support for the employment of childcare assistants, dedicated space for lactation/nursing that is private and hygienic and includes a provision for refrigerating breast milk, etc.

[CC- 479] The Contractor shall ensure that:

- It documents the measures that have been taken to maximise women's employment.
- Its subcontractors respect this quota.

The Contractor shall report on women employment by disclosing information on the following indicators in the ESHS monthly report:

- Percentage and number of women among the total workforce.
- Working hours allocated to women among the total workforce.
- Percentage and number of women shortlisted candidates, interviewed, hired, promoted.
- Salary level of men and women for the same positions.
- Percentage and number of promotions given to women vis-à-vis men.
- Percentage and number of women in non-administrative roles.
- Percentage and number of women in senior management.

E Minority or Vulnerable Persons Employment Program

[CC- 480] The Contractor shall promote the employment of people with disabilities by implementing dedicated voluntary policies (incentives or quotas).

[CC- 481] Special attention shall be paid to facilitate the recruitment of disabled or vulnerable people, with adaptation of the work posts as needed.

[CC- 482] The Contractor will monitor the number of persons with disabilities it has hired. The Contractor will highlight in its offer how it seeks to promote work for people with disabilities. The Contractor will put at the disposal of disabled employees all the necessary equipment they need so that they can perform their job safely.

F Specific Restriction on Medical Personnel

[CC- 483] Given the fragility of the Malawi Public Health infrastructures, the Contractor will refrain from recruiting public sector staff from the health facilities in the Project area to work in its medical facilities.

4.21.4 Local Skill Development and Training Program

[CC- 484] The Contractor shall establish and implement a skill development/training program for the local workforce, in order to:

- improve the capacities of the local communities, with the aim of improving their recruitment on the project or on another project.
- develop skills that can be transferable to other potential jobs when they leave the employment of the Project at the end of their contract.

[CC- 485] This program shall target local persons that are not yet hired on the project and those that are already hired and working on the project. The Contractor shall accept to collaborate with the Employer for the preparation and implementation of this program.

[CC- 486] Such plan will include:

- Description of a range of skill development/training measures to be implemented by the Contractor to enhance employability and capacities of local workforce (e. g. literacy



training, financial literacy training, job readiness trainings) and to maximise the opportunities for recruitment of local labour with appropriate skills.

- Description of skill development/training application process, schedules, and funding sources.
- Description of measures to ensure equal opportunities for all local people to access skill development/training.
- Description of measures to facilitate the participation of women in the skill development/training process.

[CC- 487] This skill development/training program shall be available to women and adjusted to their level of education. This program is to be linked to the Personnel Training Plan.

[CC- 488] The Contractor monitoring will have to ensure it is aligned with the Employer labour and human resources audit procedures (ref.

4.21.5 Monitoring Of Recruitment

[CC- 489] The Contractor shall monitor the performance of the recruitment plan, keeping track of:

- Malawian personnel recruitment, number of positions and working hours
- Foreign personnel recruitment, number of positions and working hours
- Women recruitment, number of positions and working hours
- Local recruitment, number of positions and working hours
- Minority or vulnerable persons recruitment, number of positions and working hours

[CC- 490] It shall monitor monthly various indicators, including gender-disaggregated indicators whenever possible, that will be part of the ESHS monitoring plan and agreed with the Employer.

4.22 Labour Management

4.22.1 Labour Management Plan

[CC- 491] The Contractor will prepare and implement a Labour management plan outlining labour and human resources management. The plan will cover:

- Languages in labour relationships
- Awareness-raising on labour rights
- Management of illiterate personnel
- Management of foreign personnel
- Prohibition of child labour
- Prohibition of forced labour
- Non-discrimination and equality
- Right of association and collective bargaining
- Employment contract
- Employees record management
- Data protection and confidentiality
- Working time and working hours monitoring
- Working time arrangements and prevention of overtime
- Remuneration and bonuses
- Leaves and paid leaves



- Housing, food and transportation of employees
- Promotion requirements and procedures
- Work injury and entitlements
- Health security and insurances
- Internal regulation, disciplinary and termination procedures and rights
- Prevention and management of gender-based violence, sexual exploitation and abuse and sexual harassment (GBV/SEA/SH)
- Personnel training plan
- Employees internal request and complaint management mechanism
- Demobilization
- Labour and human resources audit

[CC- 492] The Labour management plan shall comply with Malawi legislation, the international guidelines outlined in the ESIA and the present Employer's Requirements.

[CC- 493] The plan shall be submitted to the Employer 60 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilization to the Site for non-objection by the Employer. No more than 100 Personnel shall be employed or contracted by the Contractor or its subcontractors at Site without an approved Labour management plan in place.

[CC- 494] The Contractor shall require their Subcontractors to adhere to their Labour management plan via the use of contractual clauses.

4.22.2 Languages in Labour Relationships

[CC- 495] The working language on the construction site is English, which is the official language of Malawi. Hence, all the Contractor personnel is expected to be able to write, read and speak in English. An exception is granted, based on the low literacy levels in the Project Area, to unskilled Malawian employees who are allowed to master only Chichewa or another national language.

[CC- 496] Employee's direct supervisors are expected to be able to speak English AND Chichewa. Hence, the Contractor is strongly encouraged to recruit supervisors which are Malawian nationals and fluent in Chichewa. If the supervisors do not have this competency, it is expected that the Contractor will recruit Chichewa speaking translators that can communicate with the employees.

[CC- 497] The following documents and any other document that the unskilled employees need to be able to read to receive information on their rights and obligations shall be produced in English and in Chichewa, with at a minimum (non-exhaustive list) :

- Job position and recruitment advertisements
- Employment contract
- Pay slip
- Human resources policy
- Code of conduct
- Internal regulation including dismissal process
- Procedures to manage harassment, gender-based violence, sexual exploitation and abuse and sexual harassment (GBV/SEA/Sh in short)
- ESHS induction material
- Collective agreements

[CC- 498] If more than 30% of the Contractor workforce comes from a country where English is not the official language, the Contractor will also need to prepare the abovementioned documentation in the language understood by the employees (for instance, Chinese or Swahili).



[CC- 499] The Contractor shall adapt its working practices to this multicultural environment, promoting cultural skills, tolerance and communication between different cultural groups. This can be done through the organization of cultural events representing the different cultural groups present on the construction site.

5.2 AWARENESS-RAISING ON LABOUR RIGHTS

[CC- 500] As part of the training plan, the Contractor will deliver an ESHS induction to all employees that will cover labour rights (see § 5.22.2).

[CC- 501] The Contractor will ensure that its Human Resources Team conduct frequent awareness-raising sessions targeting its managers and employees' supervisors, and its subcontractors, on the topic of labour rights, so that all levels of management are aware of the rights that need to be upheld at all times on the construction site. These sessions as a priority will cover:

- Prohibition of child labour
- Prohibition of forced labour
- Non-discrimination and equality
- Maximum working hours and overtime management
- Internal regulation, disciplinary and termination procedures and rights
- Employees internal request and complaint management mechanism
- Prevention and management of gender-based violence, sexual exploitation and abuse and sexual harassment (GBV/SEA/SH)

[CC- 502] The Contractor will ensure that its Human Resources Team develop Information, Education and Communication (IEC) material targeting all employees, such as posters, leaflets, informative videos, to be placed in strategic locations on the construction site, including the accommodations and other living quarters, so that broad information is given to the employees on their labour rights. The themes covered will be similar to those above-mentioned, in addition to themes relevant to workers such as:

- Temporary nature of the works with limited opportunities in operation phase.
- Financial literacy, importance to plan ahead and spend/save wisely.

[CC- 503] The Contract could be asked by the Employer to participate to awareness-raising sessions targeting external stakeholders on specific labour rights topics, such as child labour (cf. § 5.4).

[CC- 504] The Contractor will accept that the Employer conducts trainings and awareness-raising sessions to its Human Resources Team directly, on various topics related to labour rights. The Contractor will need to ensure that its subcontractors accept to receive the same trainings from the Employer.

4.22.3 Management of Illiterate Personnel

[CC- 505] Illiteracy levels remain high in Malawi and in the Project Area. Therefore, it is likely that the Contractor will hire illiterate persons, especially in the frame of the local employment maximization (see § 4.1.5.3).

[CC- 506] Upon recruitment of each employee, the Contractor Human Resources Team will, in addition to all the other measures detailed in this document, explain to the employee orally its basic labour rights and detail the content of the:

- Human resources policy
- Employment contract
- Temporary nature of the works
- Start date and end date
- Pay slip, salary levels and overtime payments
- Code of conduct



- Internal regulation including dismissal process

[CC- 507] Given the low level of literacy in the Project Area, the Contractor shall consider providing literacy courses, including financial literacy, to the local employees as part of the Local skill development and training program.

4.22.4 Management Of Foreign Personnel

[CC- 508] The Contractor may bring into Malawi any foreign personnel who are necessary for the execution of the Contractor's Activities to the extent allowed by the applicable legal requirements and by the Employer's requirements, especially the Local Employment Program.

[CC- 509] The Contractor shall ensure that these personnel are provided with the required residence visas and work permits prior to arrival and admittance to Site.

[CC- 510] The risk of forced labour among foreign personnel is usually higher than for national employees. Therefore, the Contractor will exert reinforced vigilance.

[CC- 511] The Contractor shall ensure, if they are using third party agencies to recruit these employees, that these employees come by their own free will to work for the project and that no mechanism is in place that could be associated to forced labour, such as: retention of passport by the third-party agent, recruitment fees to be paid by the employees or charged onto their salaries, etc.

[CC- 512] The Contractor is responsible to provide these personnel with the required contractual arrangements that allows them to regularly return to their home country (through rotation systems for instance).

[CC- 513] The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in Malawi of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial at their own expenses.

4.22.5 Prohibition of Child Labour

[CC- 514] Employment shall not interfere negatively with the universal right to education, including higher education.

[CC- 515] Hence, the minimum age of employees shall not be less than 18 in order to minimize the multiple risks arising from the employment of minors. This commitment shall be respected for all tasks to be performed, whatever their dangerousness.

[CC- 516] The Contractor shall put in place a recruitment procedure enabling the age of applicants to be verified, by requesting identity documents at the recruitment stage and storing a copy of these documents for future controls. In cases where an applicant cannot provide such identity document, the Contractor will liaise with the Employer to conduct a verification of the employee's age with the village headmen, and further triangulation if required. If requested by the Employer, the Contractor will undertake to assist employees in obtaining identity documents from the relevant authorities.

[CC- 517] The Contractor will be asked to participate, on a voluntary basis and as part of its CSR actions, to awareness-raising sessions on child labour organized at the initiative of the Employer and targeting various stakeholders.

4.22.6 Prohibition of Forced Labour

[CC- 518] Forced labor is defined as "any work or service exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily". Three cumulative elements can therefore be identified: a work or service, a threat of penalty (not necessarily a criminal measure. It may be an act of violence, physical coercion, psychological pressure, a pecuniary measure, or the loss of certain rights), and the absence of free and informed



consent (consent shall be continuous throughout the employment relationship, and certain actions or practices, such as an employer making false promises or concealing the true working conditions, can invalidate the initially given consent).

[CC- 519] In order to avoid any form of forced labor, the Contractor shall ensure that:

- all work is consented to in a free and informed manner, i.e., that the employees are fully aware of the working conditions, without false promises and without any form of coercion.
- an employment contract is signed by the Contractor and the employee, describing precisely and simply the position and the tasks to be carried out (cf. § 5.9).
- employees have free access to their ID and passport documents if they are kept in a given location.
- the costs charged to employees are appropriate, authorized by law, and do not force employees to remain in their jobs, even if they are unable to reimburse the costs (the costs may relate to travel, accommodation, or recruitment agency fees).
- employees are free to leave their workplaces and accommodation, subject to appropriate safety and other restrictions.
- employees are free to leave the employment relationship and that their consent is not coerced in respect of any debt owed to the Contractor (for example, the Contractor shall not provide the employees with an excessive advance payment).

[CC- 520] The Contractor shall not force employees to work overtime by threat of dismissal or by any other measure that would reduce their future income.

[CC- 521] Where recruitment agencies are used, the Contractor shall vet these agencies, monitor and control their practices and policies to ensure that employees are not subjected to excessive or unauthorized charges. The Contractor shall ensure that foreign employees are treated fairly, by monitoring agencies that supply subcontracted labor and blacklisting those that engage in abusive practices and forced labor.

4.22.7 Non-Discrimination and Equality

[CC- 522] The Contractor is responsible for preventing and resolving any situation of discrimination or harassment .

[CC- 523] The Contractor shall ensure that no decision such as recruitment or dismissal is motivated by a prohibited ground of discrimination (cf. § 5.20.7). The Contractor will ensure that its managers are fair and equitable in assigning the most difficult tasks. He will react if the most arduous tasks are constantly assigned to the same individuals of different sex or origin.

[CC- 524] The Contractor shall put in place an internal procedure in the event of harassment (cf. § 5.23), including an identification phase (internal investigation with collection of testimonies, search for information, etc.) and a phase for dealing with the facts (separation of the harasser and the person harassed, disciplinary sanctions, or reorganization of the work). Contractor commitments and procedures to manage discrimination or harassment shall be accessible and communicated to management, supervisors, and employees in English and Chichewa.

[CC- 525] The Contractor shall ensure that an equal opportunities policy is in place as well as mechanisms to ensure non-discrimination of women and disabled persons in accessing recruitment and promotion procedures.

[CC- 526] Equal pay for men and women shall be respected, based on work, skills, experience, responsibilities, or any other objective factor unrelated to gender.

[CC- 527] Salary, recruitment and hierarchical promotion data shall be rigorously compiled to demonstrate the transparency of the processes applied and their compliance with the non-discrimination and equality principles.

4.22.8 Right of Association and Collective Bargaining



4.22.8.1 Freedom of association

[CC- 528] The Contractor shall ensure that employees have the possibility to freely create and join an organization. The Contractor shall establish objective criteria for the recognition of trade unions within the company. These may be determined by national legislation or by a competent authority such as the Ministry of Labor. Failing that, the criteria can be set by a workplace referendum.

[CC- 529] The Contractor shall ensure that trade union representatives have access to the workplace during breaks and outside working hours. Trade union activities carried out during working time will, however, be subject to the Contractor's agreement.

[CC- 530] The Contractor shall make every effort to ensure that trade union activities are properly conducted.

[CC- 531] An employee may not be dismissed for trade union activities. They may, however, be dismissed on other grounds if these are justified. Under national legislation, the dismissal of trade union representatives may be subject to a special procedure.

4.22.8.2 5.8.2 Collective bargaining

[CC- 532] The Contractor shall conduct collective bargaining with the trade unions. If there are no trade unions in the company, negotiations may be conducted with elected representatives (appointed in accordance with national law).

[CC- 533] Negotiations may cover all terms and conditions of employment and shall be conducted in good faith. All parties shall be willing to discuss, compromise and reach a mutually agreed solution.

[CC- 534] The collective agreements resulting from these negotiations may only include conditions that are at least as advantageous as those provided for by national legislation.

[CC- 535] Employees shall have free access to collective agreements.

4.22.8.3 5.8.3 Consultation and communication

[CC- 536] In addition to collective bargaining, the Contractor shall ensure that systems agreed between employers, employees and their representatives should provide, in accordance with national law and practice, for regular consultation on matters of mutual interest. Such consultations should not replace collective bargaining.

[CC- 537] Appropriate measures should be taken to promote consultation and collaboration between employers and employees on company strategy in matters of common interest which are not covered by collective bargaining procedures or are not normally the subject of other procedures for determining terms and conditions of employment.

[CC- 538] In addition, a communication policy will need to be put in place, adapted to the size, composition and habits of the workforce.

[CC- 539] Communications shall be authentic, regular and two-way:

- Between management representatives and employees;
- Between the management representatives and the union representatives or any other person authorised to represent the employees (in this second case, the management shall ensure that the representatives will be able to communicate this information to all the employees concerned).

[CC- 540] The choice of means of communication should be determined by the circumstances of the information to be communicated and by national legislation.

[CC- 541] In terms of content, communications shall cover the following subjects:

- General working and employment conditions (recruitment, remuneration, benefits in kind, etc.);
- Description of workstation functions and their position in the company structure;



- Professional training opportunities and prospects for advancement within the company ;
- Occupational health and safety regulations and instructions for preventing accidents and occupational illness;
- Complaints procedures and how they work;
- Staff services (care, hygiene, canteens, accommodation, etc.) ;
- The company's social security or social assistance systems;
- The company's general situation and prospects or plans for future development;
- Explanation of decisions likely to affect, directly or indirectly, the situation of the company's personnel (transfer of personnel, termination, etc.);
- The methods of consultation, discussion and collaboration between management and its representatives, on the one hand, and staff and their representatives, on the other.

[CC- 542] An effective communications policy should ensure that information is disseminated, and consultation takes place between interested parties before decisions on matters of major interest are taken by management, provided that the provision of such information is not prejudicial to any party.

4.22.8.4 Strike

[CC- 543] In the event of a strike, the Contractor shall not recruit employees to replace striking employees.

[CC- 544] The Contractor shall ensure striking employees face no punitive actions, as per the Labour Relations Act, which prohibits civil proceedings against any involved party for actions during a strike or lockout not deemed criminal offenses. It is also forbidden to deduct a greater proportion of wages than that corresponding to strike days, to dismiss striking employees, not to renew their employment contract, or to reduce their benefits.

[CC- 545] Peaceful strikes shall not be interrupted by police or security forces.

4.22.9 Employment Contract

[CC- 546] The Contractor shall propose employment contracts that are aligned with the national regulation, which distinguishes (article 25 of the Employment Act, 2000):

- a contract for an unspecified period of time;
- a contract for a specified period of time;
- a contract for a specific task

[CC- 547] The Contractor shall not use contracts for specific task or daily/weekly contracts.

[CC- 548] The Contractor will submit the template of employment contract(s) it intends to use to the Employer for non-objection prior to the start of the works. If the Contractor has no template, the Employer will propose to the Contractor to use its own template.

[CC- 549] The employment contract shall be produced in 3 copies, and shall follow these rules:

- It shall be written in English.
- If the employee doesn't understand English, it shall be written in Chichewa in addition to the English version.
- In cases where the Contractor has a large part of its workforce that does not understand English or Chichewa, the employment contract shall be prepared in English and in the language understood by the employee.

[CC- 550] The contract shall be preferably short (less than 4 pages), understood by the employee and signed by all the parties involved. One copy shall be handed over to the employee.

[CC- 551] The employment contract shall include the following information:

- Full identification of employee and employer ;



- Dates of commencement of work and signature of contract ;
- Job title and/or function and description of duties ;
- Working hours ;
- Annual leave ;
- Salary, payment frequency and method of calculation;
- Additional remuneration, bonuses paid and explanation of bonuses ;
- Provision of benefits in kind (food, transport, etc.) ;
- Benefits in terms of health protection and social security ;
- Period of validity and reason for contract ;
- Conditions relating to the termination of the employment relationship (notice period, compensation, etc.).

4.22.10 Employees Records Management

[CC- 552] The contractor shall keep a file containing a set of documents required by law. As a minimum, the file will contain the following items:

- Birth certificate ;
- Copy of employment contract ;
- Work permit ;
- Proof of previous employment ;
- Photocopy of driving licence (for drivers) ;
- Medical examination certificates ;
- Training certificates ;
- Employment certificate ;
- Pay slips ;
- Record of hours worked ;
- Documents attesting to the employee's declaration to the competent bodies.

[CC- 553] The Contractor shall maintain a database (in Excel or any other suitable format. Software can be used if deemed adequate) where it is possible to see, for each employee, details on age, gender, birthplace, residence, type of position occupied, level of skills, level of responsibility, hiring date, the daily hours worked (distinguishing regular hours and overtime), seniority, promotions, absenteeism, wages paid depending on hours category (regular, overtime), and trainings conducted. This database shall also include data on local employment.

[CC- 554] This database shall be available at all times at the main Site, so that it can be reviewed by the Employer and authorized government representatives.

4.22.11 Data Protection and Confidentiality

[CC- 555] The Contractor shall respect the principle of data protection and confidentiality of information, in order to protect the privacy of employees. The following principles shall therefore be complied with :

- The employee should be informed of the usefulness of the documents to be provided to the Contractor.
- Collecting this data should not lead to illegal discrimination.
- All documents should be provided by the employee. If it proves necessary to obtain data from a third party, the employee shall give his or her explicit consent (by signing a declaration, etc.).
- If a declaration of data collection or transfer shall be signed by the employee, it shall be clear, in the employee's own language, and shall include the following information: identity



of the recipient persons, institutions or organizations, nature of the data to be disclosed, reasons for their collection, and period of use of the declaration.

- The following data shall not be collected by the Contractor: data relating to the sex life of employees, the political, religious or other opinions of employees, and the criminal convictions of employees. An exception is possible, however, if national legislation permits the collection of an employee's criminal record.

[CC- 556] Documents may be disclosed without the employee's consent in the following cases:

- If necessary to prevent a serious and imminent risk to life or health.
- In the event of requirements for the application of criminal law.

[CC- 557] In order to respect the principle of confidentiality and the right to privacy as much as possible, the Contractor shall clean the databases listing all the employees' data every year in order to delete any data it no longer needs.

4.22.12 Working Time and Working Hours Monitoring

4.22.12.1 Working hours

[CC- 558] The Contractor shall define working times on the Site that are aligned with the needs of the construction and the present requirements.

4.22.12.2 Working time

[CC- 559] The Employment Act, 2000, defines the legal framework for hours of work, weekly rest, and leave entitlements for employees. The Act sets a maximum of 48 hours a week for normal working hours. According to the Act, each employee shall have a rest period of 24 consecutive hours for each 7-day work period.

[CC- 560] In addition, the Contractor shall provide a daily rest of at least 10 to 12 consecutive hours over a 24-hour period. Employees shall be given breaks of between 10 and 30 minutes during the working day, as well as one meal break lasting 30 minutes to 2 hours for each shift.

[CC- 561] Hours worked in excess of this working time are overtime, which shall be voluntary, paid at a higher rate, and remain exceptional (for example, in the event of extraordinary work overloads, or in the event of emergency work to be carried out, only to the extent necessary to avoid serious disruption to the normal running of the business). They shall be subject to a preliminary approval of the Employer and of the labour authorities (article 38, Employment Act, 2000) and be limited to a maximum of 60 hours' work per week.

[CC- 562] No overtime beyond 60 hours per week will be allowed under no circumstances by the Employer.

[CC- 563] The Contractor shall respect local festivals, days of rest, and customs. No work is to be done on local rest days or outside of normal working hours unless specified in the contract, consented to by the Employer, or necessary for safety or protection reasons, in which case the Employer shall be immediately notified.

[CC- 564] Part-time employees shall receive the same protection as full-time employees in comparable situations with regard to their rights to freedom of association, collective bargaining, safety and health at work, and discrimination in employment and occupation. They shall also enjoy equivalent conditions as regards maternity protection, termination of the employment relationship and other terms and conditions of employment.

4.22.12.3 Working time tracking

[CC- 565] The Contractor is obligated to accurately track and monitor employee working hours including regular shifts, overtime, breaks and leaves. To do so, the Contractor shall deploy on the Site an Automated Time Tracking Systems to record employee clock-in and clock-out times.



[CC- 566] In addition, the Contractor shall ensure proper adherence to work time requirements, specifically through :

- Clear Work Policies: establishment of detailed work policies that define standard working hours, break times, and procedures for authorizing and recording overtime. These policies should comply with local labor laws, the present requirements, and be readily accessible to all employees through platforms like an employee handbook, internal website, or notice boards.
- Regular Audits and Reviews: Conduct periodic audits of work hour records to ensure adherence to these policies. The frequency of these audits can vary based on the workforce's size and nature, ranging from weekly to monthly.

4.22.12.4 Night work

[CC- 567] Night-time construction works will be avoided (where possible), specifically including heavy goods vehicle traffic and blasting, (from 22pm to 7am, as defined by the WHO) to avoid sleep disturbances for the local residents (and any wildlife).

[CC- 568] Where night-time activities are required, night work (defined as work from midnight to 5 am) shall be allowed, subject to HSSSE risk assessment, permit to work (ref. [13]) and specific compensations.

4.22.13 Working Arrangements and Prevention of Overtime

[CC- 569] The Contractor is responsible to implement all necessary measures to prevent overtime and prohibit overtime beyond the legal 48 hours a week. The Human Resources Team shall duly train the managers and supervisors on the respect of working hours and overtime. The supervisors and managers themselves shall respect the 48 hours rule. The employees shall be informed about the working hours and shall be discouraged to ask for overtime, as is frequently the case.

[CC- 570] Whenever possible, 3 x 8 shift work should be favoured, as it increases labour recruitment and reduces the risk of exceeding the 48-hour working week.

4.22.14 Remuneration and Bonuses

4.22.14.1 Minimum wage and decent living wage

[CC- 571] The Employer has conducted an assessment of the Malawi minimum wage to ensure it meets the concept of decent living wage, which is an essential component of worker's rights and is defined by the ILO as: "the wage level necessary to afford a decent standard of living for workers and their families, taking into account country circumstances and calculated for work performed during normal hours".

[CC- 572] The minimum wage as of July 2024 is set as per the law at:

- Daily Wage: MK 3,461.54
- Monthly Wage: MK 90,000.04

[CC- 573] This wage does not reach the World Bank extreme poverty level, set at 2,15 USD per day.

[CC- 574] Therefore, the Employer identified a monthly decent living wage necessary for the employee, i.e. meeting the essential needs of the employee and those of his family, taking into account:

- The general level of wages in the country, the cost of living, social security benefits and the comparative living standards of other social groups;
- Economic factors, including the requirements of economic development, productivity and the desirability of achieving and maintaining a high level of employment;
- Changes in the cost of living and other economic conditions.



[CC- 575] This monthly wage has been set at 90 USD for 48 hours of work per week. It is regarded as a minimum wage that the Contractor shall respect for the unskilled employees only. This monthly wage is the net wage that the unskilled employee is due to receive, without in-kind benefits, bonuses and overtime payments. It shall be paid in Malawian kwacha to Malawian employees.

[CC- 576] If the Malawi regulation on minimum wage evolves and exceeds 90 USD, then the Contractor shall apply the wage level set in the regulation.

[CC- 577] This wage shall be converted into Malawian kwacha currency on a quarterly basis, and reflected on the employee pay slip, to ensure that any devaluation in the kwacha does not penalize the workforce.

[CC- 578] The Contractor will present in its offer its own wage analysis and propose higher wage levels, if adequate. The Contractor is free to set wage levels that are higher than those proposed by the Employer.

[CC- 579] The Contractor is encouraged to discuss the wage levels with the employee's representatives at the beginning of the construction and ensure it is agreed collectively by the employees, in order to avoid strikes.

4.22.14.2 5.14.2 Overtime compensation

[CC- 580] Under the Employment Act of 2000, the overtime compensation rates are defined as follows:

- Employees working beyond their normal hours on a regular working day are entitled to 150% of their hourly salary as ordinary overtime.
- On days off, if employees are required to work, they receive 200% of their hourly salary as day off overtime.

[CC- 581] Night work (from midnight to 5 am) shall give rise to specific compensation, in the form of both pay and time off, even though this is not a legal requirement. Meal requirements set in § 5.16 are applicable to night employees.

4.22.14.3 5.14.3 Wage deductions

[CC- 582] Under the Employment Act of 2000, the contractor shall not deduct from an employee's wages any amount, except:

- Employee contributions to compulsory social security schemes.
- Deductions mandated by law or court order. However, these deductions shall not exceed half of the employee's wages for the respective pay period.
- Deductions that have been explicitly authorized by the employee in writing. It's important to ensure that these authorized deductions, when combined, do not exceed half of the employee's wages. Permissible deductions under this category include:
 - Advances on wages
 - Contributions to fund such as vacation, medical insurance, saving funds.
 - Deductions for trade union subscriptions, which refer to the deduction of trade union membership fees (contingent on written authorization from the employee).

[CC- 583] In all cases, the main principles below shall be respected by the Contractor:

- For deductions to be authorized, there shall be an appropriate legal basis: national legislation, collective agreements, or arbitration awards; individual agreement is not enough.
- All deductions shall be subject to limits, so that the net amount of pay received by the employee is in all cases sufficient to provide him and his family with an income guaranteeing an adequate standard of living.
- The Contractor shall inform their personnel about Contractor legal responsibilities regarding taxes, deductions, and other statutory financial obligations related to personnel



compensation and benefits under applicable law. All relevant information on the reasons for and limits of deductions from wages shall be communicated in advance to the employees concerned to avoid any unexpected reduction in their pay. It is preferable to inform employees by duly referring to the deductions in the employment contract, or by permanently displaying the relevant legislation and/or internal regulations in the workplace.

- An employee cannot have their salary withheld for not wearing Personal Protective Equipment (PPE), for damaging or for losing company equipment.
- Employees should be informed in writing of any deductions made. Any deduction from wages for the purpose of securing payment to an employer or any intermediary for the purpose of obtaining or retaining employment is prohibited.

4.22.14.4 Pay slip and wage payment

[CC- 584] A pay slip shall be produced and given to the employee, containing all the necessary information, including at least : the total salary, the basis on which the salary is paid (hourly rate, daily rate), the payment date, the period concerned, the total sums added to the employee's salary or deducted, the total remuneration for overtime, details of monetary and in-kind bonuses, the holiday balance and the method of payment.

[CC- 585] Payment of wages by bank transfer to the employee's account will be preferred wherever possible. Employees who do not have bank accounts will be assisted by the Contractor in opening an account with the bank of their choice. Bank charges for opening and maintaining an account and for salary transfers will be paid by the Contractor.

[CC- 586] In cases where this is not possible, and to avoid security problems, it is proposed to implement the following measures for salary payments in cash:

- Stagger payments (weekly or every 15 days).
- Vary pay days and do not communicate on pay days.

[CC- 587] If there is no bank close to the worksite (within a 45-minute radius), the Contractor shall ensure that an ATM is available on the worksite so that employees can withdraw cash.

[CC- 588] Salaries (including overtime) shall be paid at regular intervals:

- At least twice a month, no more than sixteen days apart, in the case of employees whose remuneration is calculated by the hour, day or week.
- At least once a month in the case of persons employed on a monthly or annual basis.

4.22.14.5 Bonuses and in-kind benefits

[CC- 589] The Contractor will be required to pay the bonuses provided for by national provisions and any applicable collective agreements to the employees concerned.

[CC- 590] The Contractor shall also give access to in-kind benefits such as housing, food and transportation (ref. 5.16).

[CC- 591] The Contractor shall also consider giving additional bonuses to the employees, to compensate for some costs incurred by their employment or to boost productivity. Prior to the start of construction, the Contractor shall present its employee salary, in-kind and bonus strategy to the Employer for non-objection. In addition, the Contractor shall negotiate the bonus package with the worker's representatives.

[CC- 592] The bonuses to which an employee may be entitled are as follows (non-exhaustive list):

- Catering allowance, for personnel not accommodated on site.
- Transport allowance, for personnel not accommodated on site.
- Housing allowance, for personnel not accommodated on site.
- Risk premium ;
- Soiling bonus ;
- Night premium ;



- Bonus for working on a customary day of rest ;
- Arduous work bonus ;
- Representation bonus ;
- Responsibility bonus ;
- On-call duty ;
- Seniority bonus ;
- Dangerous and unhealthy work bonus.

[CC- 593] A proportion of employees will not be accommodated on the construction camp. This is particularly the case for local employees (residents established in the Project Area prior to the start of construction) who will stay at home.

4.22.15 Leaves and Paid Leaves

4.22.15.1 Regular leave

[CC- 594] According to the Employment Act, 2000, employees are entitled to paid annual leave based on their work schedule :

- Employees working six days a week get at least 18 working days of leave.
- Those working five days a week are entitled to 15 working days of leave.

[CC- 595] This leave should be taken within six months of eligibility but can be deferred or accumulated by agreement. Part-time employees are also entitled to leave, calculated based on their working days. For employees with less than a year of service, the leave is proportionate to their service length.

4.22.15.2 Sick leave

[CC- 596] An employee shall be entitled, after completing twelve months' continuous service, to at least four weeks sick leave on full pay and eight weeks sick leave on half pay during each year.

[CC- 597] During sick leave, an employee shall be paid the normal rate of wages.

4.22.15.3 Maternity leave

[CC- 598] A female employee shall be entitled, within every three years, to at least eight weeks maternity leave on full pay. During the period when an employee is on maternity leave, her normal benefits and entitlements, including her contractual rights and accumulation of seniority, shall continue uninterrupted and her period of employment shall not be considered to have been interrupted, reduced or broken.

[CC- 599] In the event of illness, certified by a registered medical practitioner, arising out of pregnancy or confinement, affecting the employee or her child, the employer shall grant the employee additional leave as the employer may deem fit.

[CC- 600] Upon the expiration of her maternity leave, an employee shall have the right to return to the same job with the same benefits and entitlements as immediately before her absence, unless:

- The job has ceased to exist because of the economic, technological or organizational requirements of the undertaking; or
- She is incapable of continuing to perform the job.

[CC- 601] In either of these circumstances, the employer shall take reasonable steps to find the employee a suitable alternative job within the undertaking. If no suitable alternative job can be found in accordance, or if the employee unreasonably refuses the offer of a suitable alternative job, the employer shall be entitled to terminate her employment with notice.



4.22.16 Housing, Food and Transportation

[CC- 602] A Construction camp shall be set up by the Contractor in its attributed area. This camp shall be designed to accommodate all Contractor employees, including employees of sub-contractors working on site, and including all local employees residing at more than 2 hours walking distance (or 8 kilometres) from the Site.

[CC- 603] The Contractor provides its personnel and the personnel of its sub-contractors with various services on the construction camp.

[CC- 604] The level of services provided depend on whether the personnel are accommodated in the construction camp or staying in their original place of residence.

[CC- 605] For personnel of the Contractor and its sub-contractors accommodated on the construction camp:

- Three (3) meals per person per day free of charge, including on night shift.
- Three (3) liters of drinking water per person per day.
- Sleeping bed in an individual or shared accommodation.
- Transportation services free of charge on a weekly basis from/to Blantyre and Zalewa (possibly from/to other locations to be defined by the Contractor) to/from construction camp by Project's buses on an appointment base.

[CC- 606] For personnel of the Contractor and its sub-contractors not accommodated on the construction camp:

- At a minimum one (1) meal per person per day free of charge. The Contractor is allowed and encouraged to provide more than one meal in order to improve employee efficiency at work. Delivery of such meal(s), which can take the form of lunch boxes, shall be made in the dining hall or dedicated eating areas in a way that minimize uncontrolled waste disposal, proliferation of pests and rodents and food contamination. The Contractor shall also consider giving in-kind unprocessed food to the local employees, such as a certain amount of maize per day, as a voluntary gesture to improve household food security.
- Three (3) liters of drinking water per person per day.
- Disease prevention equipment, especially condoms and mosquito nets, to be brought home and renewed on a regular basis.
- Transportation services free of charge on a daily basis for local employees (i.e. residing at less than 2 hours walking distance or 8 km) from/to collecting points along the S137 in nearby villages to/from work sites by Project's buses for each shift on an appointment base. Location of the collecting points/bus stops will be decided jointly with MHPL.

[CC- 607] All employees, whether residing on the construction camp or not, will be offered access to:

- Medical facilities, medical care and regular medical check-ups
- Religious facilities
- Leisure facilities and wellness programs
- All other common services (e.g., mini-market, laundry, etc.)

[CC- 608] The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Site.

4.22.17 Promotion Requirements and Procedures

[CC- 609] The Contractor shall establish comprehensive requirements and procedures for employee promotion, ensuring a structured and equitable approach to career advancement. The Contractor shall define clear and measurable metrics as a baseline for promotion eligibility. This could include Performance Metrics for evaluating objective accomplishments, Competency Metrics for assessing skills and problem-solving abilities, Leadership Metrics for identifying



individuals capable of leading teams and adapting to new challenges, Interpersonal and Cultural Fit Metrics focusing on teamwork, communication, and alignment with company values, Contribution Metrics to highlight an employee's impact on business results, and Reliability Metrics to ensure consistency in attendance and adherence to policies. Additionally, the Contractor shall specify the minimum experience and qualifications necessary for promotion, including tenure, relevant certifications, and completed training programs.

[CC- 610] The contractor shall implement a fair and formal process for promotion applications. An evaluation committee, comprising members from various departments, shall be formed to review applications and ensure a comprehensive evaluation process. The contractor is obligated to disclose the promotion criteria to all employees, ensuring transparency and fairness. A feedback mechanism shall be implemented for applicants, providing insights into strengths and areas for improvement, regardless of the decision. An accessible appeal process shall be provided for employees wishing to contest promotion decisions.

[CC- 611] The Contractor shall keep detailed records of all promotion applications, evaluations, and decisions. Regular reviews of the promotion policy and procedures are required to assess effectiveness and identify improvement areas.

4.22.18 Work Injury and Entitlements

[CC- 612] The Contractor operating within Malawi shall rigorously comply with the Employees' Compensation Act of 2000, ensuring comprehensive protection and fair compensation for all employees who suffer work-related injuries. This obligation encompasses several critical responsibilities.

[CC- 613] Upon the occurrence of a work-related injury, the contractor's first responsibility is to ensure the injured employee receives necessary medical attention. This includes arranging for emergency medical services if required. It is the contractor's duty to cover all reasonable medical expenses arising from a work-related injury. This includes costs for medical, surgical, and dental treatments; hospital and skilled nursing services; medications; prostheses and mechanical aids; and transportation necessary for treatment. These provisions ensure that injured employees receive the necessary care for their recovery without bearing the financial burden.

[CC- 614] The Contractor shall document the details of the incident, including the date, time, circumstances of the injury, and the names of any witnesses. This record is essential for the compensation claim process. Plus, the contractor should facilitate a medical examination by a certified medical practitioner to assess the severity of the injury and determine the level of incapacity, whether temporary or permanent.

[CC- 615] The Contractor shall report the injury to the Employees' Compensation Board within 21 days, especially if the injury results in death, potential death, permanent incapacity, or incapacitates the employee from normal employment for more than fourteen days.

[CC- 616] The Contractor shall inform the injured employee or their representative about their rights under the Employees' Compensation Act and the process for filing a compensation claim.

- If the injury results in temporary incapacity, the employee is entitled to a percentage of their earnings, paid after a three-day waiting period until full recovery or certification of permanent disability.
- In the case of a permanent total incapacity, a lump sum equivalent to 54 months of the employee's earnings is payable for permanent total incapacity.
- Compensation for permanent partial incapacity is calculated based on the assessed degree of disability, with a specified percentage of the total benefit payable depending on the nature of the injury.
- In the case of a fatal injury, the contractor shall pay a lump sum equivalent to 42 months of the deceased employee's last monthly earnings to the dependents, minus any disability benefits previously paid. If there are no dependents, the contractor covers reasonable medical and burial expenses.



[CC- 617] Employers are not required to pay work injury benefits in the following cases: if the work injury leads to incapacity for less than seven days; if the injury or death is a result of deliberate self-injury; and if the injury is a result of wilful misconduct of the employee.

[CC- 618] The Contractor shall, under the Employees' Compensation Act of 2000 in Malawi, contribute financially to the Employees' Compensation Fund through assessments. These assessments are crucial for funding the scheme that compensates employees for injuries or diseases acquired at work. The amount of each assessment is determined by regulations set by the Minister, advised by the Employees' Compensation Board, allowing flexibility in response to economic shifts and the Fund's needs'

[CC- 619] After paying the assessment, the Contractor's direct financial responsibility for compensations ceases, transferring to the Employees' Compensation Fund. Compensation for work-related injuries or diseases is then issued by the Commissioner from the Fund.

4.22.19 Health Security and Insurances

[CC- 620] The Contractor will be responsible to subscribe to health and life insurances for all its employees, covering workplace accidents.

[CC- 621] According to the Pension Act, 2010, the Contractor are mandated to enrol all their employees in the National Pension Scheme. Contributions to this scheme are required to be a minimum of 10% from the employer and a minimum of 5% from the employee, based on the employee's pensionable earnings.

[CC- 622] Employers failing to comply without a reasonable excuse are liable to administrative penalties under the Financial Services Act.

4.22.20 Internal Regulation, Disciplinary and Termination Procedures and Rights

4.22.20.1 Duty to act

[CC- 623] All Contractor's and Subcontractor's personnel including management and supervision, shall deal immediately with ESHS issues and if required, stop the works, where they are life threatening, or where severe injury, to human or animal, property and asset damage or environmental impact could be significant.

4.22.20.2 Rules of procedures

[CC- 624] Rules of procedure are established by the Contractor for the Working Areas, the Construction Camp but also for the areas outside the Project Area where employees will interact with local communities. These rules shall address the following:

- duty to act,
- occupational health, safety, security and worker's environment rules,
- environmental protection rules, including waste disposal, pollution prevention,
- relationship with the local communities, respect for the beliefs and customs of the populations and community relations in general (drawing special attention to the risks of prostitution and human trafficking),
- ethics and compliance rules (bribery, corruption, gifts),
- respect for human rights, including prohibition of modern slavery/forced labour, child labour, etc.
- asset damage procedure in the event of accident,
- prevention of STDs and HIV/AIDS, and other communicable diseases (COVID-19) as applicable,
- basic health: combating waterborne diseases and improving hygiene
- smoking area restrictions (to avoid fire),



- vehicle speed limits,
- prohibition to provide lifts to members of the community as these favours may encourage sexual encounters and pose a public liability risk in the event of an accident or accusation of sexual assault,
- zero tolerance for substance abuse,
- zero tolerance for harassment and bullying,
- zero tolerance for gender-based violence, sexual exploitation and abuse and sexual harassment (GBV/SEA/SH) towards women in the local communities, but also towards female employees, notably cleaning and catering staff,
- employee's grievance mechanism to address employee's complaints on their working and living conditions on site,
- protection of biodiversity with:
 - i. prohibition of entry in Majete Wildlife Reserve and in the future project conservancy area without written authorization
 - ii. restriction of personnel movements to designated roads and paths to minimize habitat degradation and interaction with wildlife,
 - i. prohibition to buy and trade charcoal products,
 - ii. prohibition to hunt and to introduce weapons and traps on site,
 - iii. prohibition to fish and to introduce any fishing equipment within the limits of the Site,
 - iv. prohibition to purchase and consume bush meat in the Construction Camp,
 - v. prohibition to collect wood or non-timber forest products (NTPFs),
 - vi. prohibition of transporting of bush meat or NTFPs in Project and contractor vehicles;
 - vii. prohibition of making fires in wooded areas that are not organized as part of construction activities,
 - viii. prohibition of holding products from endangered species,
 - ix. prohibition of introduction of alien/exotic plants or animals including domestic pets

[CC- 625] The rules are clearly displayed at the different Working Areas, including in the Construction Camp, and posted in the Contractor's vehicles and machinery driving cabs.

[CC- 626] New Contractor's personnel and existing Contractor's personnel are made aware and acknowledge their understanding of the rules of procedure and the associated provisions.

[CC- 627] The rules of procedure include a list of acts considered as serious misconduct (ref. 5.20.4 and which shall result in dismissal by the Contractor, or by the Employer if the Contractor is not acting in due course, should a Contractor's Personnel repeatedly commit an offence of serious misconduct despite awareness of the rules of procedure. This is without prejudice to any legal action by any public authority for non-compliance with applicable regulations.

[CC- 628] All personnel shall be made aware of the penalties and sanctions applicable in case of breach of the rules of procedure.

4.22.20.3 Code of conduct

[CC- 629] The Contractor shall establish a Code of Conduct that underlines basic rules governing expected behavior and safety to be respected by all the Contractor's personnel and Subcontractor's personnel.

[CC- 630] All employees, contractors, subcontractors and suppliers, shall be committed to permanently comply with the principles and procedures outlined in the Code of Conduct.

[CC- 631] The Code of Conduct and safety rules reported shall be written so as to be easily understandable in English and in Chichewa, and in any other language necessary for the understanding by all the Contractor's personnel (cf. § 2).



[CC- 632] The Code of Conduct will present the rules that the employees commit to respect, the serious misconducts that can trigger sanctions and the list of sanctions.

[CC- 633] The Contractor shall require all employees (including its Sub-contractors) to sign the Code of Conduct at the start of the employment contract and keep a record of these signatures.

[CC- 634] In order to better inform employees on the scope of the Code of Conduct, and associated sanctions, the Contractor will organize sessions of common reading of the Code of Conduct (and regulations) in small groups (10 to 25 persons), such as during ESHS induction training.

[CC- 635] Some aspects and situations may not be described in the Code of Conduct or Rules of Procedures. In such a case, employees are expected to behave appropriately and to make decisions that reflect appropriate ethical standards.

4.22.20.4 Serious misconducts

[CC- 636] Examples of serious misconduct include:

- Drunkenness during working hours, leading to risks for the safety of local inhabitants, customers, users and personnel.
- Consumption of illicit drugs.
- Punishable statements or attitudes, and GBV/SEA/SH in particular.
- Violent behavior.
- Any form of harassment, intimidation, prejudice, discrimination or other injury, for example:
 - Verbal harassment (explicit or offensive and unwelcome jokes, name calling, insults, derogatory comments)
 - Physical harassment (unnecessary and unwelcome physical contact, assault, physical interference which prevents a person from doing their work in a normal manner)
 - Visual harassment (sexually suggestive images, objects, posters, caricatures, drawings, etc.)
 - Hidden allusions/insinuations
 - Action and behaviour that qualifies as bullying
- Physical and psychological violence, especially against women, children or vulnerable persons.
- Intentional harm to the property and interests of others or to the environment.
- Repeated negligence or recklessness resulting in damage or prejudice to the environment, to the population, to property, in particular in relation to the prescriptions of the fight against the spread of STDs and AIDS.
- Possession and / or consumption of meat or any other animal or plant part from species protected within the meaning of the Washington Convention (CITES) and national regulations.
- Entry on a neighboring property without the permission of the owners or people cultivating or leasing the land.

4.22.20.5 Regular checks

[CC- 637] The Contractor shall enforce the rules of procedures and code of conduct with regular checks and balances to ensure compliance, e.g. verify that security teams undertake routine inspections of vehicles and staff bags entering and leaving site to check for prohibited products, verify records of journey times or Global Positioning System (GPS) recorders to check speed limits on roads are respected, verify that new staff and contractors are familiar with the codes of conduct.



4.22.20.6 Sanctions

[CC- 638] A prioritized list of sanctions shall be established in case of non-compliance with the Code of Conduct and Rules of Procedures. These sanctions can range from blames to immediate dismissals and this, without prejudice to any legal proceedings instituted by the public authority for non-compliance.

[CC- 639] These sanctions shall be consistent with the legislation applicable in Malawi. Specifically, in case of poaching or prostitution, relevant legal articles, penalties, penal sanctions will have to be communicated to each employee upon hiring.

[CC- 640] Serious misconduct, such as organization of sex trade (pimping), committing pedophilia, physical aggression, drug trafficking, deliberate and severe pollution, trading and/or trafficking in all or part of protected species, shall lead to immediate dismissal as of the first report of misconduct is detected, in application of the rules of procedure and labour laws.

[CC- 641] The Contractor establishes a record for each case of serious misconduct, and a copy will be provided to the Contractor's Personnel in question, indicating all action taken to terminate the misconduct by the Contractor's Personnel in question and to bring the attention of other Contractor's Personnel to the type of incident detected. This record will be provided to the Employer as an attachment to the ESHS activity monthly report.

[CC- 642] The Employer can demand the Contractor to dismiss any staff violating ESHS norms or the Employer's ESMS, without facing legal action. This applies to persons who :

- Continue any misconduct or carelessness.
- Show incompetence or negligence in their duties.
- Do not follow contract provisions.
- Engage in actions harmful to safety, health, or environmental protection.

[CC- 643] If necessary, the Contractor shall replace the person at their own expense.

4.22.20.7 Dismissal procedure

[CC- 644] The term "dismissal" here refers to the termination of the relationship at the initiative of the Contractor.

[CC- 645] The Contractor shall ensure that an employee is only dismissed for a valid reason relating to the employee's fitness or conduct, or based on the operational requirements of the Contractor.

[CC- 646] According to the Malawi Employment Act of 2000, the following reasons do not constitute valid reasons for dismissal or for the imposition of disciplinary action:

- An employee's race, color, sex, language, religion, political or other opinion, pregnancy, nationality, ethnic or social origin, disability, property, birth, marital or other status or family responsibilities.
- An employee's exercise of any of the rights specified in Part II and Part V of the Labour Relations Act, for example trade union membership or participation in trade union activities, or the fact of seeking, exercising or having exercised a mandate to represent employees.
- The filing of a complaint against an employer.
- An employee's temporary absence from work due to illness, injury or maternity leave.
- An employee's exercise or proposed exercise of the right to remove himself from a work situation which he reasonably believes presents an imminent or serious danger to life or health.

[CC- 647] In addition, the following are not valid grounds for dismissal or disciplinary action:

- Pregnancy is not in itself a valid reason for dismissal. The burden of proving that the reasons for dismissal are unrelated to the pregnancy lies with the Contractor. The health benefits to which pregnant women are entitled are determined by national legislation and



practice, but shall include prenatal care, care related to childbirth, postnatal care and hospitalization where necessary.

- A employee should not be dismissed for professional incompetence unless the Contractor has given him appropriate instructions and written notice, and the employee continues to fail to perform his work satisfactorily after the expiry of a reasonable period which shall be communicated to him.
- A employee should not be dismissed for misconduct which, under national law or practice, would justify dismissal only if repeated on one or more occasions, unless the employer has given the employee an appropriate written warning.

[CC- 648] An employee who is to be dismissed will be entitled to a reasonable period of notice or to compensation as provided by the Employment Act 2000 unless he or she has been guilty of serious misconduct (cf. § 5.20.4).

[CC- 649] This minimum notice periods is based on wage rates and employment duration as follows :

- Monthly-Paid Employees: One month's notice.
- Fortnightly-Paid Employees (two weeks):
 - Less than 5 years: One fortnight's notice (two weeks).
 - 5 years or more: One month's notice.

[CC- 650] Employers can pay in lieu of notice (a sum equivalent to the remuneration that would have been earned during the notice period).

[CC- 651] The employee shall have the opportunity to defend himself against the allegations made and to have recourse to the assistance of another person.

[CC- 652] An employee should have the right to appeal to an impartial body such as a court or an arbitration board, unless the dismissal has previously been authorized by a competent authority. The burden of proving just cause for dismissal should rest with the Contractor. Alternatively, or in addition, the impartial body should be empowered to form its opinion based on evidence provided by the parties in accordance with procedures consistent with national law and practice.

[CC- 653] The Contractor shall provide for the conclusion of a collective agreement with the elected representatives of the employees to regulate the benefits and indemnities received in the event of dismissal.

4.22.21 Prevention and Management of GBV/SEA/SH

4.22.21.1 Safe working environment

[CC- 654] The Contractor shall provide a safe working environment for women, with adequate segregation/facilities and arrangements that reduce exposure of women to risks of GBV/SEA/SH.

[CC- 655] This shall include :

- Gender-separate accommodation on camp.
- Gender-separate lockable latrines and WASH facilities that are well-lit, conveniently located and easily accessible.
- Workers' safety committee which will include at least one trained female worker representative.
- All women employees have access to properly designed and fitted PPE.
- Recruitment of women among security personnel.
- Separate security checks performed by women personnel.
- Adequate lighting of Working Areas and construction camp at night.



4.22.21.2 GBV/SEA/SH prevention and management plan

[CC- 656] The Contractor shall implement a GBV/SEA/SH prevention and management plan that includes the following points.

A Nomination of a GBV/SEA/SH focal point

[CC- 657] The Contractor shall ensure the nomination of a GBV/SEA/SH focal point who will be the referral for all GBV/SEA/SH activities. The focal point will be in charge of the integration of women on the construction site, the organization of regular meetings with them to monitor any issue/particular need, and the follow-up of gender issues. He/she will also be responsible to receive all grievances related to GBV/SEA/SH and to transfer them to the Employer GBV/SEA/SH service provider.

B Preparation of a GBV/SEA/SH prevention

[CC- 658] The Contractor shall prepare a GBV/SEA/SH prevention policy, on top of the Human Resources Policy, and ensure that affirmation that GBV/SEA/SH will not be tolerated is inscribed in all necessary documents (Code of Conduct, Internal regulation, etc.). The Contractor will have to clarify the rights and obligations of employees with regard to GBV/SEA/SH in all necessary documents, including a detail of penalties and legal proceedings in case of violations.

C GBV/SEA/SH service provider

[CC- 659] The Employer will be responsible for the recruitment and management of a GBV/SEA/SH service provider. The Contractor shall accept to collaborate with the service provider and to let him perform the following activities without any encumbrances and in full cooperation:

- Conduct trainings targeting the personnel of the Contractor and its subcontractors, including to top management.
- Manage all grievances reported for cases of GBV/SEA/SH and coordinate the investigations, with the possible involvement of the police, and resolution process.
- Access and use the site facilities to perform trainings, interviews with employees and investigations.

[CC- 660] The GBV/SEA/SH service provider will be in charge of conducting, under the management of the Employer:

- Assessment of risks in the workplace, taking into account factors that increase the risk of violence and harassment, including psychosocial hazards and risks.
- Training of the GBV/SEA/SH focal point on their role and responsibilities, the survivor-centered approach, knowledge of legal framework and Employer GBV/SEA/SH prevention and management of grievances including local support services, psychological first aid. The focal point nominated shall be confident and have certain skills to adopt a survivor-centered approach.
- GBV/SEA/SH prevention sessions including Information, Education and Communication activities. The following awareness-raising activities are mandatory:
 - As part of the ESHS induction training, a briefing on gender-based violence for all new employees, regardless of their length of service.
 - Specific awareness-raising of the security personnel.
 - Organization, in conjunction with the Employer, of regular talks on the prevention of GBV/SEA/SH, prevention of prostitution and promotion of gender equality.
 - Training sessions specifically targeting women employees, in order to empower them to resist to men's solicitations and to report them, when appropriate.

[CC- 661] The aim of awareness-raising shall be to act on the factors which increase the risk of violence and harassment in the Working Areas. Particular attention should be paid to hazards and risks that :



- Stem from working conditions and procedures, work organisation and human resources management.
- Involve third parties, such as service providers and members of the public.
- Are due to discrimination, abuse linked to power relationships, or to gender norms or cultural and social norms that encourage violence and harassment.

[CC- 662] Training shall be presented in English and Chichewa, and should draw attention on:

- Unacceptability of violence and harassment, and of GBV/SEA/SH.
- Definition of GBV/SEA/SH, how to identify GBV/SEA/SH cases and how the project can exacerbate GBV/SEA/SH risks.
- National legislation and project commitments on GBV/SEA/SH.
- Project's GBV/SEA/SH prevention policy and reporting systems and sanctions for GBV/SEA/SH -related breaches.
- Cultural sensitisation on respectful engagement with local communities.

D GBV/SEA/SH Grievance Redress Mechanism

[CC- 663] The GBV/SEA/SH service provider will be in charge of the management of the GBV/SEA/SH grievances through a dedicated Grievance Redress Mechanism put in place by the Employer.

[CC- 664] The Contractor will inform all employees on the existence and functioning of the Employer GBV/SEA/SH Grievance Redress Mechanism, including the access points to the mechanism.

[CC- 665] The GBV/SEA/SH focal point will be designated to be one of the access points to the mechanism. The Contractor will ensure that when receiving the grievances, the GBV/SEA/SH focal point is:

- Providing survivors of GBV with safe and effective gender-sensitive support and counselling services.
- Adopting a survivor-centered approach.
- Guaranteeing complainants' right to confidentiality.
- Taking all measures to protect complainants, survivors, witnesses and whistleblowers against victimisation and reprisals.

[CC- 666] The Contractor will register the grievances for GBV/SEA/SH originating from its personnel in a dedicated database where high levels of confidentiality will be maintained.

[CC- 667] The Contractor will then report all complaints for cases of GBV/SEA/SH to the Employer, who will ensure its management through its GBV/SEA/SH service provider.

[CC- 668] The GBV/SEA/SH focal point will assist the Employer GBV/SEA/SH service provider in the management of the grievance, possibly participating in the grievance resolution process that can include:

- Monitoring the support and safety of survivors, communicating regularly with them.
- Identifying external expertise who will plan the investigation.
- Making recommendation on work status of the perpetrator (suspended, reassigned, etc.)
- Gathering and securing evidence.
- Preparing and submitting a report with actions (such as disciplinary measures or reporting to authorities) to be taken (which shall be aligned with national law).

[CC- 669] The Contractor will suspend the works upon request of the Employer if the complaint is not clarified within the agreed timeframe, depending on its level of seriousness.

4.22.22 Personnel Training Plan



[CC- 670] The Contractor shall prepare a Personnel Training Plan and submit it to the Employer 120 days prior to mobilization to the Site for non-objection by the Employer.

The training plan shall include details on:

- Technical trainings.
- ESHS trainings, including specific HSSE trainings.

[CC- 671] Training for each type of position shall be identified through a comprehensive training and competency / skills matrix.

[CC- 672] For each of the training the Contractor shall provide the following information:

- Objective of the training
- Content of the training
- Organisation in charge of delivering the training
- Targeted staff
- Time frame for staff to receive training after being hired on the project.

[CC- 673] For all trainings conducted, including ESHS trainings and induction session, a training certificate shall be delivered to each participant and a copy shall be kept in the employee Personal Profile Dossier.

The Contractor shall document the implementation of the ESHS training plan each month in the ESHS monthly activity report.

4.22.22.1 Technical trainings

[CC- 674] Work-task specific training shall include:

- Training in the skills required to work on tasks requiring a work permit.
- Any training deemed necessary to carry out the Contractor's activities.

[CC- 675] The Contractor will put in place strong on-the-job technical trainings to quickly increase the capacities of the personnel, especially the local employees, as those are expected to have low skill levels.

4.22.22.2 ESHS trainings

[CC- 676] The Contractor shall ensure that all persons performing a task on the work site that has a significant potential impact on the health or safety of employees or the environment are competent to perform that task with minimal impact.

[CC- 677] Therefore, the Contractor's personnel working on the construction site shall be trained on their work environment and in meeting the ESHS requirements of the Project. The Contractor details in the training program the actions and ESHS training for Subcontractors when applicable.

[CC- 678] This program shall propose:

- An ESHS induction training for all personnel.
- Regular tool-box-talks on relevant and topical issues and related to ESHS incident reporting figures.
- Specific E&S training programs for employees involved in particularly environmentally and socially sensitive activities (e.g. vegetation clearing, waste management, vehicle driving, site security, blasting, etc.). The below trainings are mandatory :
 - Training of personnel in charge of vegetation clearing on the rules to be respected to minimize clearing and avoid damages to adjacent areas; on the sensitivity and objectives of the planned conservancy area and protection measures to be undertaken; on effective snake management procedures including appropriate protective clothing and snake handling; on wildlife encounter management.



- Training of vehicle operators to adhere to speed restrictions and avoid collisions with wildlife.
 - Training of drivers on the risks of unsafe sex and STIs, safe sex practices and behaviours.
 - Training of security guards to check for bushmeat or other prohibited products on personnel and vehicles leaving/entering site.
 - Training for the social team on the synergies and potential conflicts of community and biodiversity work.
 - Security guards on the importance of respecting human rights and labour rights.
- HSSE trainings.

[CC- 679] Each new recruit will participate in the ESHS induction training within 10 days of recruitment. Each employee will undergo an annual refresher based on abbreviated training content.

[CC- 680] This training will be provided by the Contractor's or by a specialized consultant appointed by the companies. The Employer shall review the training material. The training will be addressed to all staff, in the most appropriate language (English and/or Chichewa). The sessions will be the subject of a register where the names of the participants will be recorded. The Contractor will also monitor the implementation of the training and retraining sessions.

[CC- 681] The ESHS induction training will cover at least the following priority topics :

- Labour management:
 - Code of conduct and rules of procedures including sanctions applied in the event of breaches of the stated Code of conduct.
 - Employees grievance mechanism.
 - Prevention and management of GBV/SEA/SH.
 - Labour rights of employees.
 - Financial literacy.
- Environmental management:
 - The rules of waste management on the Site.
 - The rules for the management of hazardous products and waste, especially their storage exclusively authorized on specially developed areas.
 - Pollution prevention and remediation, in particular the actions required in case of accidental pollutant spills.
 - The protection of biodiversity, imposing (i) the absolute prohibition to hunt and to introduce weapons and traps on site, (ii) the prohibition to fish and to introduce any fishing equipment within the limits of the Site, (iii) the prohibition to consume bush meat in the Construction Camp, (iv) the prohibition to collect wood or non-timber products, (v) the prohibition of making fires in wooded areas that are not organized as part of construction activities, (vi) the prohibition of holding products from endangered species, (vii) the prohibition of unplanned introductions of animal or plant species or the spread of invasive species, ...
 - The rules in case of encounter with fauna.
 - The principles of saving energy, water and other resources.
- Social management:
 - Culturally appropriate behaviour for interacting with local populations to minimize disturbing communities or giving offence to local population when employees are off camp in urban centres.
 - Development of the intercultural communication on site: the words and basic grammatical structure necessary to greet people (say hello), thank them (thank you) and to remain polite ("please", for example) should be known in the local language and



in the language(s) of the Contractor's and will be taught / brought to the attention of all employees and sub-contractors (here: English, Chichewa).

- Respect for local communities and their particularities and cultures.
 - Respect for human rights.
 - The rules regarding harassment and bullying.
 - The rules regarding GBV/SEA/SH and non-violence against vulnerable persons (in particular, based on disabilities or based on gender and/or sexual orientation).
 - The procedure to follow in the event of discovery of a physical cultural resource (chance-find procedure).
- Health and safety risks to which employees are exposed (see Occupational Health, Safety, Security and Employee's Environment Requirements) and health and safety management:
 - Risks related to sexually transmitted diseases, water borne diseases, insect-transmitted diseases and hygiene.
 - The rules of road safety on public roads and sites.

4.22.23 Employee Internal Request and Complaint Management Mechanism (IRCMM)

[CC- 682] The Contractor is required to take into account grievances, concerns and complaints issued by its employees and those of its subcontractors in order to anticipate the negative effects of employee dissatisfaction with their working conditions, which can lead to conflict situations, resulting in the temporary or prolonged interruption of project activities because of strikes, demonstration or worksite blockade.

[CC- 683] The Contractor shall therefore provide its employees and those of its subcontractors with an Internal Request and Complaint Management Mechanism (IRCMM) to enable them to raise concerns about their working conditions and living conditions on site.

[CC- 684] If the Contractor has already a procedure that satisfy these recommendations, it shall describe it in its Labour management plan so that it can be approved by the Employer.

4.22.23.1 Overview of the IRCMM

[CC- 685] The mechanism shall involve management at an appropriate level and respond quickly to concerns through a comprehensible and transparent process that provides feedback to those concerned. The mechanism shall ensure protection of the complainant and prevent reprisals.

[CC- 686] The mechanism shall not preclude or delay access to other judicial or administrative remedies that may be available under Malawi law or existing arbitration procedures or replace grievance mechanisms established by collective agreements.

[CC- 687] The Contractor shall appoint two persons from among the staff, a man and a woman, specifically responsible for its implementation, called Internal Complaints Management Officers or ICMO.

[CC- 688] He shall also set up a Contractor Mediation Committee (CMC) to intervene as mediator in important complaints management. Both ICMO and CMC members shall be trained to manage GBV/SEA/SH), as stipulated in § 5.22..21.

[CC- 689] The description of the Contractor's IRCMM, the planned awareness of employees and a description of the expected organization will be included in the Contractor's Labour and Human Resources Management Plan and updated as necessary.

[CC- 690] The design and implementation of the Contractor's IRCMM will be based on the international standards and best practices.



4.22.23.2 GBV/SEA/SH

[CC- 691] The IRCMM shall have a separate Channel for GBV/SEA/SH grievance reporting, including to record grievances for gender-based violence, sexual exploitation and abuse and sexual harassment in a separate database guaranteeing survivor's confidentiality. The Contractor shall ensure that all GBV/SEA/SH grievance are reported to the Employer GBV/SEA/SH service provider for management.

4.22.23.3 Definition of key concepts

- Request: need for information, wish, apprehension, concern expressed in connection with the project. If the request is not answered satisfactorily, it is likely to turn into a complaint.
- Complaint: an oral or written expression of a concern, dissatisfaction, demand, need or aspiration relating to these working conditions, made by employees of the Contractor or its subcontractors.
- Conflict: a dispute between two or more stakeholders characterized by tension, disagreement and polarization. A situation in which these stakeholders raise or express claims for the recognition of divergent or competing aspirations.
- Internal Request and Complaint Management Mechanism (IRCMM): an organized and institutionalized process by which stakeholders can submit requests, complaints as defined above in relation to the project. It is also a method of preventing, collecting and processing requests and complaints that allows conflicts to be anticipated or responded to in a systematic manner. It includes investigation techniques and tools, actors and their roles in the collection and processing of requests and complaints, as well as rules and procedures adapted to the context.
- Stakeholder: a person or group of persons or organization that (i) is directly or indirectly employed by the Contractor (ii) represents the Contractor.
- Complainant: a stakeholder (individual or group) who expresses a problem, concern, claim or issue related to working conditions, which they want to see addressed and/or resolved by the Contractor.

4.22.23.4 Purpose and scope of the IRCMM

[CC- 692] The IRCMM's main goals are to promote dialogue and employee's involvement in the project, effectively reduce or manage labour risks from its implementation, and ensure fair and dignified treatment of employees. It covers cases of gender-based violence, sexual exploitation and abuse and sexual harassment (GBV/SEA/SH) and harassment in general.

[CC- 693] The IRCMM covers all employees, including subcontractors.

4.22.23.5 Criteria for the validity of a complaint

In order to determine the eligibility of the complaint or request, the processing of the complaint goes through two filters: admissibility and verification that it is well-founded.

- Admissibility of the complaint : complaints, claims, requests, misunderstandings that are factual or perceived as such in direct or indirect connection with the employees' working conditions shall be taken into account in the complaints procedure. A first level of screening is used to determine the admissibility of these complaints.
- [CC- 694] Ineligible complaints are those whose subject matter is unrelated to the Contractor's responsibility or mandate.
- Complaint eligibility: an initial analysis will be conducted to evaluate legitimacy of the claim with regards to the actual on-site situation. It will validate the legitimate character of the complaint.
- Anonymity and confidentiality: the Contractor will ensure that anonymous complaint will be regarded as admissible into the IRCMM. All along the process of resolution, he will guarantee claimant confidentiality.



4.22.23.6 Channels available for filing a complaint

[CC- 695] The first step in dealing with complaints / grievances shall be with the manager of the employee(s) concerned. The use of the IRCMM is encouraged if the supervisor's response is deemed unsatisfactory by the employee or if the employee is uncomfortable with the principle of managing the complaint with his/her supervisor.

[CC- 696] Complaints can be made in English and Chichewa. Individuals may submit their complaints in writing or orally by telephone (call or message), or through an intermediary. The Contractor shall provide individuals with at least two options for filing complaints.

A Contractor's offices

[CC- 697] A queries and complaints office is open within the Contractor's offices on the construction site, for the collection and processing of complaints. It is managed by the ICMO.

B Complaint boxes

[CC- 698] Several complaint boxes are also installed in the different Working Areas of the Contractor on the construction site. They will allow the filing of complaints and suggestions from employees in complete anonymity. These will be regularly collected by the ICMO.

C ICMO visits

[CC- 699] The ICMO makes regular visits to the Contractor's various Working Areas to meet with employees and staff. On this occasion, he/she collects the impressions, concerns and opinions of the employees in relation to the Contractor's responsibilities and likely to create conflict situations, as well as oral and informal requests and complaints, while taking care to collect the contact details of those who do not wish to follow the established process to contact them at a later date. The Contractor will provide an officer of the appropriate gender to collect the complaint or grievance if there is a gender-related aspect (especially in case of sexual harassment or gender-based violence, as per § 5.21).

4.22.23.7 IRCMM governance

[CC- 700] Two bodies for the resolution of requests and complaints are offered to the complainant.

- The Contractor's Management.
- The Contractor Mediation Committee (CMC): The CMC is an entity that will be established by the Contractor with the participation of company personnel. Its purpose is to independently and impartially resolve requests and complaints through mediation.

[CC- 701] The CMC is made up of representatives of the employees, management (which chairs the Committee) and possibly a civil society organization experienced in mediation. It is composed of four members, all of whom have voting rights, and a rapporteur, namely:

- A employee's representative ;
- A management representative ;
- A representative of the Contractor's management ;
- A representative of civil society. As an actor external to the project, the company and the community, it helps to ensure the transparency, impartiality and credibility of the CMC, ensures compliance with IFC standards and national regulations and human rights ;
- The ICMO is the rapporteur of the dossier, provides clarifications on the dossier but does not take part in the vote. The 4 members have a deliberative vote; it is specified that the President will have the casting vote in the event of a tie during the vote.

4.22.23.8 Information and communication on the mechanism

[CC- 702] The Contractor's ICMO will organize meetings to inform and sensitize the Contractor's staff on the existence of the IRCMM and its mode of operation, this to encourage its use by



employees and managers as a recourse for their concerns, requests and complaints related to the project.

[CC- 703] This awareness will be done at a minimum during employee induction sessions. Regular reminders will be made at the appropriate meetings (ESHS meetings, etc.). Information posters will also be posted in appropriate locations to remind employees of the channels available for filing complaints, providing the contact details of the ICMO.

4.22.23.9 Monthly monitoring

[CC- 704] The Contractor will include in its monthly ESHS report a reporting dedicated to this process. The standard content of the reporting form (indicators, etc.) will be proposed by the Contractor and shall be approved by the Employer. In particular, the following indicators will be included:

- the number of complaints received during the month,
- the types of complaints received (categorization),
- the minimum, maximum and average duration of complaints processing,
- the number of complaints resolved, in progress and unresolved, etc.

4.22.24 Demobilization

4.22.24.1 Demobilization plan

[CC- 705] One year before the peak period is reached, the Contractor will submit a demobilization plan to the Employer, covering the following topics:

- The demobilization schedule and extent of demobilization (number of employees to be terminated or whose contract will come to an end per month).
- Reasons for the demobilization of employees.
- The expected forms of demobilization (end of fixed-term contracts, individual redundancy, collective dismissals, etc.).
- In-kind or financial compensation offered to employees:
- Severance pays or other similar benefits.
- Unemployment insurance, unemployment assistance or other benefits.
- Program for assistance to alternative employment or professional reconversion offered to all personnel at the end of their contract period.

[CC- 706] The Contractor will implement consultations with employees' representatives on the Demobilization plan, including the reasons for the proposed demobilization, the number and categories of employees likely to be affected and the period over which the demobilization is expected to take place.

[CC- 707] The Contractor will prepare an updated demobilization plan that shall be agreed through a collective agreement with the employee's representatives at least six months before the demobilization effectively starts (which is expected to be after the workforce peak has been reached).

[CC- 708] If required, the Contractor will notify the competent authority on the demobilization plan, providing all relevant information.

4.22.24.2 Program for assistance to alternative employment or professional reconversion

[CC- 709] The Contractor will offer a program for assistance to alternative employment or professional reconversion to all the demobilized personnel during the whole construction period (not only in the demobilization phase). The measures will be accessible to all employees, whether their contract period is over or they have been dismissed.

[CC- 710] Such program could encompass:



- Placement of affected employees in other suitable jobs.
- Support for jobseekers to help them reintegrate into the world of work. This can take the form of services such as help with writing CVs, preparing candidates for job interviews, etc.
- Vocational training leading to qualifications to optimize the skills of former unskilled employees, to offer them new opportunities and/or provide them with the tools they need to develop business opportunities.

[CC- 711] As far as possible, the program should be prepared and carried out by competent partners, such as NGOs, employment promotion structures or any other competent body.

[CC- 712] The Contractor will consult employees' representatives on this program.

4.22.25 Monitoring of Employment

[CC- 713] The Contractor shall maintain a database of all employees distinguishing local, national and expatriate employees, their skill levels, positions, working hours, wages, etc. It shall monitor monthly various indicators that will be part of the ESHS monitoring plan and agreed with the Employer.

4.22.26 Labour and Human Resources Audit

[CC- 714] The Contractor shall comply with the legal requirements of the Employment Act, 2000, in terms of labour inspections conducted by the labour authorities in Malawi.

[CC- 715] The Employer reserves the right to carry out any planned or unplanned checks it deems necessary whenever it is considered useful targeting the Contractor and its Subcontractors. This includes on-site audits, site visits, interviews with the Contractor's personnel, to ascertain compliance with the obligations arising from the Labour and Human Resources Requirements. It may appoint third party audit firms for this purpose.

[CC- 716] The Employer shall be able to interview employees about their working conditions without interference from the Contractor. Random surveys can be made on specific share of the workforce, as per the Employer's needs.

[CC- 717] The Contractor shall give the Employer and its representatives, including external auditors, full and unrestricted access to all areas where employees may be present, including all Working Areas, warehouses, chemical storage areas, toilets, infirmary, canteen and accommodations/dormitories.

[CC- 718] The Contractor shall also authorize the Employer and its representatives to take photographs during the visit, both of the exterior and the interior. The Contractor shall provide all the necessary documents requested by the Employer and its representatives.

[CC- 719] The following points will be checked, in accordance with a pre-defined audit protocol:

- Each employee has an employment contract;
- Age of employees higher than the legal minimum or the minimum set by the company;
- Up-to-date identity papers for each employee ;
- Declaration of affiliation to social security for each employee and payment of social security contributions;
- Pre-employment medical ;
- Payment of wages in accordance with the employment contract ;
- Presence of pay slips ;
- Archives relating to personnel management (time sheets) ;
- Checking overtime and payment;
- Social dialogue with employee representatives;
- Effective complaints management mechanism ;



- Control of audits of service providers (reports, justification for carrying out audits and results of these controls) ;
- Internal workplace accident procedure and monitoring of all incidents, accidents (including missed accidents) and occupational illnesses in the workplace.
- Demobilization.

[CC- 720] Findings shall be tracked in a register and classified on a risk basis with high-risk issues escalated to the Contractor's management and Employer for remedy or other action, which shall be subject of a follow-up until close-out of the non-compliances/breaches.

[CC- 721] In the event of repeated or serious breaches of the labour requirements by the Contractor, a subcontractor or a supplier, the project owner will notify the Contractor of the measures to be taken, which may include suspension of payments, penalties, or a change of supplier.

[CC- 722] A final labour audit will be carried out by the project owner during the works completion phase. This audit will be a condition for the final payment of the contract to the Contractor.

[CC- 723] Labour indicators that will be proposed by the Contractor and approved by the Employer shall be mentioned in the ESHS monthly report that the Contractor shall submit to the project owner.

The Contractor's audits of its suppliers or service providers shall address the labour and human resources requirements of this document. The Contractor will assume responsibility for compliance with the labour requirements of the subcontractors and suppliers he selects.

[CC- 724] It is responsible for auditing its subcontractors and submitting the audit reports to the project owner.



4.23 Occupational Health, Safety and Security

4.23.1 Contractor HSSE Program

[CC- 725] The Contractor is tasked with developing a comprehensive HSSE Program tailored to the scope of work and associated services, ensuring alignment with the Employer's requirements and procedures and statutory specifications. The plan shall be submitted to the Employer 30 calendar days after Contract Award. The final version of the document shall be submitted not less than 120 days prior to mobilization to the Site for non-objection by the Employer. Regular updates are mandated to maintain relevance throughout the Contract.

[CC- 726] Key components include:

- Development of a robust Health, Safety, Security, and Environment (HSSE) Policy, outlining principles and objectives, endorsed by top management.
- Establishment of a clear project organogram delineating HSSE personnel roles and responsibilities.
- Implementation of a detailed HSSE Management System encompassing protocols for HSSE meetings, pre-work safety discussions, and an internal compliance assurance program and other requirements in compliance with ISO 45001:2018 specifications.
- Implementation of procedures for hazard identification, risk analysis, last-minute risk assessment, and management of change and associated control measures.
- Implementation of an HSSE Key Performance Indicator (KPI) reporting and statistical analysis system.
- Implementation of a comprehensive Incident Management Procedure shall be developed as part of the Contractor HSSE Program, aligned with the Employer's Incident Management Procedure.
- Establishment of robust training, competence, and communication programs, including HSSE-specific training needs analysis, competency verification, site induction, and toolbox talk programs.
- Identification of supervisory roles and provision of suitable training for supervisors, and reflected in the Contractor's training needs analysis, including hazard identification and risk assessment.
- Implementation and adherence to project security measures and access control procedures, with enhanced requirements for sensitive project sites.
- A behaviour-based safety program and incentive award scheme as agreed with the Employer.
- Development of a strategy for conducting compliance assurance, ensuring project and legislative compliance through HSSE validation and verification of safeguards and closure of compliance gaps. Internal and external audits are required to evaluate the effectiveness of the HSSE Program and identify areas for improvement.
- Measures for managing subcontractors, ensuring prequalification, and continuous evaluation of HSSE performance, ensuring their alignment with Project HSSE requirements.
- A comprehensive Contractor Transportation Management Plan (TMP), incorporating a Malawi-specific transportation risk assessment and mitigation plan. The Contractor TMP shall cover protocols for the transportation of materials, personnel, and equipment. This plan should include considerations for transportation in all Project contractual activities and areas, such as country entry locations, within and close to project perimeter areas, and to and from work and accommodation locations. Special risk control measures must be identified to ensure safe transportation through rural roads and villages. The TMP must detail man-machine interface protocols, mobile plant such as excavators, vehicle and equipment standards, inspection, and maintenance requirements.



- Implementation of working at height and fall protection requirements, mechanical handling, lifting, and rigging protocols, excavation and earth-movement safety requirements, fire prevention and hot work activities procedures, and confined space work guidelines.
- Establishment of health management protocols, including medical fitness certification, welfare, ablution, and changing room provisions for the workforce
- Implementing a fatigue management plan that outlines specific measures to address and mitigate fatigue risks and promote employee well-being and alertness. This may include scheduling rest breaks, providing adequate time off between shifts, and limiting overtime hours. Focus is to be given to employees with special requirements such as during Ramadan.
- Implementing Extreme Weather protocols designed to protect personnel, equipment, and operations during severe weather conditions such as storms, extreme heat or cold, heavy rain, or high winds. This procedure includes monitoring weather forecasts, establishing communication protocols, securing loose objects, halting outdoor work, limiting transportation activities, and ensuring safe shelter and evacuation routes for all personnel.
- Epidemic and Pandemic Management Plan detailing procedures to handle both known and unknown epidemic and pandemic situations.
- Development of a Contractor Emergency Preparedness and Response plan aligned with the Employer's Emergency Preparedness and Response Procedure, delegating suitable response protocols to manage all possible emergency scenarios and initiate recovery measures. Site-specific emergency response arrangements such as evacuation procedures and assembly/muster points are required.
- Hazardous material management, including storage, handling, and disposal procedures.
- Incorporate strict requirements to maintain cleanliness and orderliness in the workplace to prevent accidents and hazards, with a strong emphasis on good housekeeping practices. Maintaining cleanliness and orderliness in the workplace to prevent accidents and hazards and paying enhanced focus on good housekeeping.
- Establishing effective protocols in the HSSE Program to prevent alcohol and drug use in the workplace.
- A comprehensive commissioning plan to ensure commissioning of EPC 1 facilities:
 - The plan must include a clear timeline, milestones, and responsibilities for each phase of the commissioning process.
 - Ensure all facilities meet regulatory and safety standards before handover.
 - iii. Include functional and performance testing of all systems and components to verify they operate correctly under all conditions.
 - Provide detailed documentation of all commissioning activities, including test results, certifications, and as-built drawings.
 - Conduct thorough training for operational staff and provide a complete handover package, including operational manuals and maintenance schedules.

4.23.2 Hazard Identification, Risk Assessment and Planning of Work

[CC- 727] The Contractor shall systematically identify, analyse, evaluate, and document all hazards associated with their operations within the scope of all work activities, systems, and processes.

[CC- 728] Occupational hazards and the associated risks shall therefore be suitably and sufficiently assessed during the planning and execution stages, utilizing acceptable risk assessment methodologies. The Contractor is responsible for implementing robust risk control measures to adequately mitigate identified risks throughout the project lifecycle.

[CC- 729] This process shall include the development of hazard analysis, risk assessment, and mitigation protocols as part of the HSSE Program, subject to the Employer's review and acceptance. The protocols must adhere to the following requirements:



- The hazard analysis and risk assessment shall involve contributions from multidisciplinary team members where relevant.
- A structured and effective method, auditable in nature, shall be utilized for hazard analysis and risk assessment.
- Specific site conditions, including weather hazards, natural hazards, transportation accidents, heat and cold stress hazards, and other meteorologically influenced concerns, shall be specifically considered, and corresponding mitigation measures identified.
- Control measures shall follow the hierarchy of controls methodology, prioritizing the elimination of risk, substitution of risk, engineering controls, administrative controls, and personal protective equipment, in that order.
- The Contractor shall ensure that pre-work risk assessments, such as Job Safety Analysis (JSA), are performed before commencing work activities.
- Safe Work Method Statements or Safe Operating Procedures, or similar work safe work instructions must be prepared to reflect the risk assessment requirements. These instructions must cover all hazardous tasks, critical operations, and simultaneous operations.
- Risk assessments and safe work instructions must be submitted to the Employer and other relevant parties within a time frame. The Employer reserves the right to accept, reject or comment on the submitted documents.

4.23.3 Work Coordination and Information

[CC- 730] The Contractor shall implement continuous and effective safe work coordination and information distribution. The following processes shall be implemented after approval from the Employer.

4.23.3.1 Permit to Work System

[CC- 731] The Contractor shall implement a robust Permit to Work (PTW) system to control general site activities and hazardous tasks. Hazardous work activities include, but may not be limited to:

- Working at height
- Working with hazardous energy (lock-out-tag-out), temporary and permanent electrical installations and safe interventions
- Work on systems containing flammable liquid or gas under pressure
- Hot work, blasting or working with explosives
- Work in or close to waterbodies
- Working in confined spaces
- Work exposed to geological hazards (e.g. unstable slopes, rock falls),
- Lifting and rigging operations
- Excavation activities
- Demolition activities
- Simultaneous operations of multiple Contractor or subcontractor activities
- Work with radioactive sources
- Tie-In activities
- System testing
- Commissioning activities

[CC- 732] The PTW system must ensure that all activities are assessed, planned, and authorized by competent personnel before work begins. Each permit must clearly outline the scope of work, identify potential hazards, and specify the necessary control measures and PPE requirements.



[CC- 733] Permits must be prominently displayed at the worksite, and only trained and authorized personnel are allowed to perform tasks under the PTW system.

[CC- 734] The Contractor shall ensure strict adherence to the PTW system, conduct pre-task briefings, and maintain detailed records of all issued permits.

[CC- 735] Regular audits of the PTW system should be conducted to ensure its effectiveness and address any shortcomings.

4.23.3.2 HSSE Checklists

[CC- 736] The Contractor shall develop and utilize comprehensive Health, Safety, Security, and Environmental (HSSE) checklists to ensure compliance with all safety protocols and regulatory requirements.

[CC- 737] These checklists should cover all aspects of site operations, including daily inspections, pre-work checks, equipment maintenance, and adherence to safe work procedures.

[CC- 738] The checklists must be systematically used by operators, supervisors and safety officers to identify potential hazards, verify the implementation of control measures, and ensure that all tasks are performed safely.

4.23.3.3 HSSE Information

[CC- 739] The Contractor shall ensure that HSSE information is effectively communicated and accessible to all workers through regular meetings, toolbox talks, signs, and information boards.

- Worker group safety discussions or toolbox talks should be conducted to discuss specific safety topics, address any immediate concerns, and reinforce safe work practices. Toolbox Talks shall be held before the start of daily work activities and regular mass discussions to share relevant information.
- Weekly or monthly HSSE meetings (as per Employer instructions) should be held with site management to review overall safety performance, and HSSE challenges, share updates on next activities and expected risks, and engage workers in proactive safety discussions.
- Information boards and signage:
 - Clear and visible signage must be placed throughout the site to highlight potential hazards, emergency procedures, and mandatory protective measures.
 - Safety communication boards should be strategically placed in key areas such as the Contractor's office area, displaying essential information including safety pyramid and Key Performance Indicator (KPI) data such as monthly manpower, incident, and accident information. Additionally, a central information board should be maintained to provide access to important HSSE documents, safety bulletins, emergency contacts, and relevant updates for workers.

4.23.3.4 Reporting to Employer

[CC- 740] The Contractor shall notify the Employer of all recordable injuries and occupational illnesses and major and medium incidents without delay (maximum an hour) and follow up with an Incident report (maximum 24 hours). This requirement is also applied for incidents that have or are expected to have a material impact on the implementation or operation of the Project.

[CC- 741] The Incident report shall be followed up with an investigation report that shall be submitted to the Employer within a time frame agreed with the Employer. All recommendations and actions in the report shall be followed up and closed out promptly and this process shall be documented.

[CC- 742] The Contractor shall submit periodic HSSE performance reports (monthly or at frequent intervals agreed by the Employer) which include:

- Total number of reported incidents last month, categorized as fatality, lost time injury, medical treatment injury, restricted work case, environmental damage incident, security incident, property damage, work-related illness and HSE observations incl. near miss



- Total number of working hours last month
- TRI and LTI frequency rate for the construction activities last month and accumulated since the start of construction
- HSE observation rate for the construction activities last month and accumulated since the start of construction work
- A brief description of the fatalities, recordable injuries, medium and major near misses, property damages, fires, accidental spills/emissions to the environment last month
- Environmental discharge reporting in accordance with the Project's Environmental and Social Management Plan
- Brief description of Regulation and Permit breaches last month
- Summary of health, safety and environmental activities last month and status in relationship to Contractor's HSSE Activity Plan
- Authority permit schedule, actual and planned
- The Contractor shall also include other HSSE performance leading indicators in its HSSE Program, in the periodic reports, as required by the Employer.

4.23.4 HSSE Training and Competence

4.23.4.1 General requirements

[CC- 743] In accordance with project standards, all project employees must be deemed competent to be able to safely perform their assigned responsibilities. It is imperative that they comprehend the associated risks and are competent in the methods and required controls for executing their tasks safely.

[CC- 744] The Contractor bears the responsibility of ensuring that all personnel under its management possess a thorough understanding of hazards, risks, risk mitigation measures, and relevant HSSE rules and standards. This competency in safe work methods required for task execution shall be achieved through the implementation of a comprehensive HSSE training and competence program.

4.23.4.2 HSSE Training and Competence Program

[CC- 745] The Contractor is required to ensure the following minimum requirements :

- Identification of Competencies:
 - Conduct a comprehensive Training Needs Analysis to identify required competencies for each job position or high-risk activity.
 - Develop a training matrix outlining necessary skills and qualifications and training schedules.
- Selection and Placement Criteria:
 - Define criteria for selection, placement, and additional training requirements.
 - Document positions requiring technical certification, registration, or licensing.
 - Define educational goals and qualification requirements for different job positions.
- Personal Profile Dossier Submission:
 - The Contractor is responsible for submitting Personal Profile Dossiers for each employee to the project site management team.
 - Dossiers should include comprehensive information on qualifications, competencies, licenses, certifications, and relevant training.
- Development of Training Program:
 - Develop an HSSE Training Program based on identified competencies and organizational goals.



- Ensure alignment with a risk-based approach and conduct a gap analysis to address discrepancies.
- Verification and Maintenance of Qualifications:
 - Implement protocols to verify employee’s qualifications.
 - Establish processes for ongoing maintenance and verification of competencies.
- Hazardous Work Activities:
 - Training for hazardous work activities shall be provided as part of the training and competence program.
 - Training should be provided for activities such as, but not limited to: Transportation safety, working at heights, electrical installations, confined spaces, handling hazardous materials, hot work, explosives and fire safety, working with explosives, and working in or near waterbodies.
- Risks relating to diseases, including hygiene, sexually transmitted diseases, COVID-19, Ebola, and vector protection such as prevention/treatment of Malaria.
- The Contractor shall implement a process to ensure that employees maintain and hold the required competencies.
- The Contractor shall ensure that employees in leadership roles (managers and supervisors) receive additional core HSSE skills.

4.23.4.3 Site induction and awareness

[CC- 746] The Contractor shall ensure that all its employees, visitors and appointed subcontractors have undergone HSSE induction training before commencing work on site. Induction training may be provided by MHPP or the Contractor, as agreed with the Site Management Team. This induction shall be inscribed in a broader ESHS induction plan.

[CC- 747] The contractor shall therefore establish a Site Induction Program. The content of Induction and awareness shall be submitted to the Employer for review and acceptance before site work commencement.

[CC- 748] The Contractor shall establish and maintain a register of all personnel and visitors that have passed this induction and awareness, and ensure that a personal identification badge/card that all personnel is required to carry as per site security requirements.

4.23.5 Personal Protective Equipment and Clothing

[CC- 749] The Contractor shall ensure that all employees, including subcontractors and authorised visitors, are provided with the necessary Personal Protective Equipment (PPE), appropriate to the risks of the work:

- PPE must comply with an internationally recognized standard such as ANSI/ISEA 125-2014 and is subject to approval by the Client.
- The PPE type required depends on the specific activity and hazards present in the area. The PPE must therefore be determined and specified in the Risk Assessment and instructed on the Permit to Work.
- The PPE includes safety helmets, high visibility vests, safety glasses, and safety footwear, which shall always be worn by all persons on Site and Work areas.
- Helmets shall be coloured for various disciplines (engineers, electricians, HSSE personnel) as specified by the Employer.
- PPE requirements may also be stipulated by regulatory requirements, MSDS, or Risk Assessment and may include suitable protective clothing, waterproofs, life jackets, gloves, hearing protection, work-at-height equipment, breathing apparatus, or any other PPE appropriate to the work being undertaken.
- All women workers have access to properly designed and fitted PPE.



4.23.6 Occupational Health

[CC- 750] The Contractor is responsible for implementing systems and protocols to maintain appropriate levels of occupational health on the Project. Work areas must be kept free from health hazards. The Contractor shall ensure the continuous welfare of its employees by implementing the following provisions.

4.23.6.1 Work-Related Illness

[CC- 751] Work-related illnesses are health conditions directly caused or exacerbated by workplace environments, tasks, or exposures. These illnesses can range from acute conditions such as respiratory infections and skin diseases to chronic ailments like musculoskeletal disorders and occupational cancers. Common causes include exposure to hazardous substances, repetitive motions, poor ergonomics, and inadequate workplace ventilation or excess heat or cold. Work-related illnesses not only impact the well-being and productivity of affected workers but also pose significant financial burdens on employers due to medical costs and lost workdays.

[CC- 752] The Contractor shall take a proactive approach to preventing work-related illnesses by identifying and mitigating workplace hazards. This includes conducting regular risk assessments, providing appropriate personal protective equipment (PPE), and ensuring that workspaces meet all health and safety standards.

[CC- 753] The Contractor shall establish and maintain a culture of health and hygiene through continuous training and education, empowering workers to recognize early symptoms and practice safe work habits. Both the physical and psychological aspects of the work environment shall be addressed to minimize the risk of work-related illnesses.

4.23.6.2 Personal Hygiene, Sanitation and Cleanliness

[CC- 754] The Contractor shall provide a sufficient number of facilities for workers to maintain personal hygiene, including showers and changing rooms, toilets and handwashing stations.

[CC- 755] Ensure clean and well-maintained facilities.

- Implement regular cleaning schedules for all common areas and workspaces.
- Provide appropriate waste disposal systems to manage solid and liquid waste effectively.
- Mobile toilets will only be allowed as a temporary solution at mobile Work fronts, and under strict cleaning regimes.

4.23.6.3 Drinking Water

[CC- 756] The Contractor shall ensure the provision of clean and potable drinking water at all construction sites:

- Drinking water stations must be easily accessible to all workers and regularly maintained to ensure quality and hygiene.
- Adequate supply must be available at all times to meet the needs of the workforce, promoting hydration and overall health. For Office workers, drinking water will be provided at a rate of 3 liters per day and per person. For the Work Zones, drinking water will be provided at a rate of at least 6 liters per day and per person. The amount of drinking water provided will be increased as much as necessary with respect to workers needs to maintain their health and avoid dehydration.
- Regular testing of water quality shall be conducted to ensure it meets health and safety standards.

4.23.6.4 Food Safety

[CC- 757] The Contractor shall ensure the provision of safe and hygienic food at all construction sites and camps.



[CC- 758] Food preparation and storage areas must adhere to strict hygiene standards to prevent contamination and foodborne illnesses.

[CC- 759] Meals should be nutritionally balanced and cater to the dietary needs and cultural preferences of the workforce.

[CC- 760] Regular inspections and compliance with food safety regulations are mandatory to maintain high standards of food hygiene and worker health.

4.23.6.5 Disease Prevention

[CC- 761] The Contractor shall implement comprehensive measures to prevent the spread of diseases, such as malaria, cholera and HIV/Aids. This includes mosquito control programs, provision of insecticide-treated bed nets, and ensuring clean water and sanitation practices to prevent cholera outbreaks.

[CC- 762] The Contractor shall submit an Epidemic and Pandemic Management Plan as part of its HSSE Program for approval by the Employer, detailing procedures to handle both known and unknown epidemic and pandemic situations.

[CC- 763] The Contractor shall conduct regular health screenings and provide necessary vaccinations to all workers.

[CC- 764] The Contractor shall ensure that the following activities are implemented for malaria: (i) Awareness and health promotion, (ii) Vector control, (iii) Disease management, (iv) Surveillance and monitoring

[CC- 765] The Contractor shall develop and implement screening for Non Communicable Diseases as part of pre-deployment, recruitment and periodic medical surveillance and capacitate the workplace medical service to recognize, manage and effectively follow up chronic diseases

[CC- 766] The Contractor shall ensure that zoonotic diseases are considered in the disease prevention plan with (i) Protocols and procedures for managing dogs, wild animal and snake bites; (ii) Occupational health programmes that include vaccinations; and (iii) Outbreak preparedness programmes to include zoonotic disease.

[CC- 767] The Contractor shall develop and implement workplace measures that specifically target HIV/AIDS and STI and include: (i) Awareness and education campaigns, (ii) Condom distribution programmes, (iii) Screening, diagnosis and treatment, (iv) HIV/AIDS and STI policy, (v) Outbreak preparedness and response, and (vi) Surveillance and monitoring.

- Massively and continuously sensitize all the staff and all the patients of the health center on HIV/AIDS and STIs (face to face, posters, talks...).
- Reduced turnaround times for rotating workers (See General Project Requirements).
- Control or even limitation/prohibition of workers' evening outings.
- Establishment of an on-site recreational area on the base (gym, billiards, TV, darts) that would limit the use of outdoor recreational areas by workers.
- Make condoms available free of charge in sufficient quantity, permanently and accessible to workers at strategic points in the Base Camp (canteen, toilets and shower areas, etc.).
- Sensitization of health personnel on STI and HIV/AIDS and on the risks related to the use of prostitution for the workers and for the communities bordering the project.
- Securing medical tools and materials (storage and disposal of medical waste) to prevent HIV/AIDS transmission.
- Awareness of HIV/AIDS protection procedures for workers who may be occupationally exposed to blood, blood products, or other human body fluids. They should receive additional training in exposure prevention, exposure registration procedures and post-exposure prophylaxis.
- Partnership with the local medical centers for HIV/AIDS testing and care to organize free, anonymous and voluntary testing of site workers. If possible, include in this partnership an



intervention work with sex workers operating near the site and offer them sensitization, distribution of prophylactic means and testing.

4.23.6.6 Snake management

[CC- 768] Effective snake management procedures including awareness of risks with the clearing of bush in construction, including appropriate protective clothing, will be developed and implemented. Procedures will include training and provision of equipment for the handling of snakes (for safe removal/relocation as required), immediate first aid measures in the field and medical protocols in the workplace medical service on the initial management and referral for snake bites.

4.23.6.7 Health Monitoring

[CC- 769] The Contractor shall implement comprehensive health monitoring measures to ensure the well-being of all workers.

- Conduct regular health assessments and monitor workers for occupational illnesses and injuries.
- Maintain detailed health records for all workers and report any incidents of occupational diseases to relevant authorities.
- Conduct regular health screenings and provide necessary vaccinations to all workers.

4.23.6.8 Extreme Weather Protocols

[CC- 770] The Contractor shall include Extreme Weather Protocols in its HSSE Program, designed to protect personnel, equipment, and operations during severe weather conditions such as storms, extreme heat or cold, heavy rain, or high winds. These protocols include:

- Continuously monitor weather forecasts and issue timely alerts to all personnel regarding impending extreme weather conditions.
- Establish clear communication protocols to ensure all workers are informed about weather risks and the necessary safety measures.
- Adjust work schedules and activities to minimize exposure to extreme weather risks. This may include rescheduling tasks, providing additional breaks, halting outdoor work, and limiting transportation activities when conditions are unsafe.
- Ensure all workers have access to appropriate protective gear, such as insulated clothing for cold weather, rain gear, and sun protection for extreme heat.
- Secure all loose objects and equipment that could become hazardous during high winds or storms.
- Provide adequate shelters and designated safe areas where workers can seek refuge during extreme weather.
- Ensure clear and safe evacuation routes are established and communicated to all personnel in case of emergency.

4.23.7 Project Medical Clinic

4.23.7.1 General Requirements

[CC- 771] The Contractor shall establish a fully equipped Project Medical Centre or Clinic to support an estimated workforce of over 1000-3000 workers. The quality of construction and equipment for the clinic must be included in the contractor's bid but shall be satisfactory to the Government medical authority and WHO standards.

[CC- 772] The Contractor workplace health service capacity shall be developed proactively so the services are in place before construction initiates and that resources are not sourced from potentially vulnerable local facilities.



[CC- 773] The clinic shall be suitable for provision of medical fitness evaluations, interventions, minor surgical, and health services for all project personnel including persons employed by the Employer, all Contractors, subcontractors, and Service Providers.

[CC- 774] The Contractor workplace health service shall cater for most health-related conditions so that referral into the local public health sector is limited for work related conditions as well as for primary health conditions for the non-local workforce.

[CC- 775] The Project health centre will coordinate with approved hospitals and clinics in Blantyre to handle cases requiring advanced treatments, including, surgeries, and other specialized medical services. The medical clinic shall provide for routine care of employees at the site and for emergency care of any person involved in an accident on site. Patients will be transferred to regional or international hospitals after initial treatment or stabilization at the medical clinic.

[CC- 776] The clinic must be available and easily accessible at all times,

[CC- 777] The clinic must be kept clean and well-maintained.

[CC- 778] The clinic must be equipped with appropriate heating or air-conditioning.

[CC- 779] The clinic must be equipped with sanitary facilities and have sufficient supply of drinking water.

[CC- 780] The clinic shall be stocked with the necessary equipment, instruments, shelves, fire extinguishers, laboratory equipment, microscopes, medicines, and materials required to examine and treat injured or sick workers under both routine and emergency conditions.

[CC- 781] The standard of service and accommodation to be provided shall be not lower than that laid down for modern European public medical centres.

[CC- 782] The Project Medical Clinic will be a temporary facility for use during project activities.

[CC- 783] The Contractor shall maintain and staff the medical centre for the duration of the Works.

[CC- 784] The Contractor shall in all respects be fully responsible for ensuring necessary first-aid services for the Employer, to his employees, and employees of his subcontractors.

4.23.7.2 Medical Personnel

[CC- 785] The Contractor shall engage the services of a licensed medical service provider to operate the medical centre/clinic, who will provide all related services. This service provider must be approved by the Employer and will provide on-site medical personnel, minor surgical and health service, transportation, site presence at hazardous activities, site patrolling, health outreach programs, and all specified services required by the Employer.

[CC- 786] A principal doctor must be present on-site at all times during normal working hours (8 hours). A second doctor will cover night shifts and weekends. Additionally, one doctor must be on-call when more than 20 workers are working simultaneously outside of normal day hours.

[CC- 787] Doctor Qualifications:

- Hold a medical degree and required certifications to practice in Malawi.
- At least 10 years of professional medical experience in hospitals or medical centres.
- At least 5 years of experience on large-scale construction sites located far from hospitals.
- Training in internal medicine, major traumas, infectious diseases, and prevalent waterborne and epidemiological diseases in the Employer's country.
- Capability to lead training sessions on occupational health and first aid.
- Trained in the management and logistics of a remote health care centre.
- Good physical condition, capable of accessing remote work areas.

[CC- 788] The Contractor shall ensure the presence of an adequate number of nurses, based on the number of workers on-site, as agreed with the Employer.

[CC- 789] Nurse Qualifications:



- Hold a degree and necessary certifications to practice as a nurse in Malawi.
- 5-10 years of experience (depending on rank) working as a nurse in hospitals or medical centres.
- Ability to manage common construction health issues such as falls, broken bones, burns, cuts, infections (malaria, dengue, etc.), fever, car accidents, and electric shocks.
- Capability to lead training sessions on occupational health and first aid.
- Fluency in a language commonly spoken by the workers and medical staff, particularly for communication in emergencies.
- Willingness to work in remote areas.

4.23.7.3 Emergency Evacuation and Transportation

[CC- 790] The Contractor shall allocate or procure appropriate means of transportation (road and/or air) for first aid purposes in accordance with standard CEN 1789:2007.

[CC- 791] The Contractor shall ensure the 24-hour presence of the required two ambulances on-site, in addition to the MHPL ambulance.

[CC- 792] The Contractor shall operate the ambulances for transport of any injured personnel to the medical centre, hospital, or other required location. These services, including drivers for the ambulances, shall be always available for use for the duration of the Works. The vehicles shall be new and equipped in accordance with Employer requirements and the requirements of the Government medical authority.

[CC- 793] The ambulances shall not be used for purposes other than provision of health services. The ownership of the ambulance shall be transferred to the Employer upon completion of the Contract.

4.23.8 Site Security Services

4.23.8.1 General

[CC- 794] The Contractor shall implement relevant security measures based on the risk assessment, the scope of work and the Employer's project security requirements to ensure a secured environment for all areas under the responsibility of the Contractor, including the Construction Camp and Facilities, shall be controlled by the Contractor. The Contractor shall employ the services from an Employer approved Private Security Company (PSC) to secure the Contractor's responsible areas, equipment, and workforce.

[CC- 795] The Contractor will therefore prepare a Contractor Security Plan as part of the HSSE Program.

[CC- 796] Private Security Company: The Contractor shall Employ the services from an Employer approved Private Security Company (PSC) to secure the Contractor's responsible areas, equipment, and workforce. The Security guards provided by this third-party shall not be armed, apart from special forces not based on site that might have to intervene in case of major security event.

4.23.8.2 Special Requirements

[CC- 797] The Contractor shall ensure the following:

- Adherence to Employer's Project Security Plan
 - Strictly follow the Employer's Project Security Plan, ensuring all security measures and protocols are implemented and maintained throughout the project duration.
 - Ensure security personnel are familiar with the project site layout, receive applicable training such as human rights training and are competent in the Project emergency protocols.
- Perimeter Security



- Establish and maintain secure perimeter fencing at sensitive locations under the Contractor's control, to prevent unauthorized access. Workshops, stores, explosive magazines, fuel depots and other sensitive facilities will be surrounded by high security fencing.
- Install controlled access points with security checks for personnel, vehicles, and equipment entering and exiting the site, fly camps and transmission line locations.
- Availability of the service
 - The security system shall be available and functioning on a 24 h/day, 7 days/ week basis at all the Works areas, including accommodation camp and operators' village will be implemented.
- Lighting
 - Provide adequate lighting in all areas of the project site to ensure visibility and deter unauthorized access, particularly during nighttime operations.
- Security Patrols
 - Conduct regular security patrols to monitor and inspect the entire project site under the Contractor's control for any security breaches or suspicious activities.
 - Document patrol activities and report any incidents immediately to the Employer's security team.
- Communication Systems
 - Establish reliable communication systems for security personnel. Communication systems shall have the necessary permissions and licences.
 - Ensure communication as per project security protocols between security personnel and the Employer's security provider.

4.23.8.3 Access Control

[CC- 798] All access points to the Site shall be monitored by the appointed PSC who shall control the access and egress of personnel, materials, and equipment.

[CC- 799] Access to all Project areas shall be limited to authorised Project personnel, or visitors. All persons entering the Site shall have an electronic identification card, which shall be issued by the Contractor. Identification cards shall permit access to only those areas relevant for each employee.

[CC- 800] Identification shall be issued following successful background checks and evidenced by a valid national identity card or passport.

[CC- 801] Identification cards shall be renewed annually.

[CC- 802] Visitors' identification cards shall be returned when exiting the Site.

[CC- 803] Visitors shall be scheduled by the relevant host before arrival at the Site. Visitors shall provide a valid national identity card or passport before entry.

[CC- 804] Provision, Installation, and Maintenance of a Guard Post:

- Located at the entrance of the construction camp to control the entry and exit of pedestrians and vehicles (visual and electronic access controls).
- Separate pedestrian and vehicle entrances.

[CC- 805] Provision, Installation, and Maintenance of a Computerized Entry and Exit Management System:

- For all residents, personnel, and vehicles at construction camp.
- All visitors entering and leaving the Site shall be recorded in an electronic data base logbook with backup. Data recorded shall be provided to the Employer when requested.



[CC- 806] Access Control Systems shall be designed to prevent unauthorized access at all points of entry and exit to the Employer’s Facilities as well as at doors of critical rooms. The system shall consist of;

- Central Equipment
- Distribution Modules
- Card readers
- Magnetic Door Contacts
- Magnetic Door Locks
- Cabling
- Software

4.23.8.4 Management of Security Personnel

[CC- 807] The Contractor Security Plan shall include a dedicated section on the management of security personnel behaviour. This section will cover the following items:

[CC- 808] Background checks and hiring:

- Conduct a preliminary background check on the company or security personnel recruited to ensure that they were not involved into previous allegations of human rights violations, excessive force use or disproportionate security response.
- The background check will rest on interviews and credentials checking with past employers and will allow avoiding selecting companies or individuals with history of past abuse. The background check must be documented in written.

A Code of conduct

[CC- 809] Request each security worker to sign a Code of conduct which underline its obligations, the respect due to local communities and the conditions in which they will be exposed to sanctions.

[CC- 810] The code of conduct is based on the general workers ‘code of conduct with an additional section targeting the security personnel as follow:

- “As a security personnel, I hereby commit to comply with the following requirements:
- To adopt at all time a benevolent, calm and peaceful behaviour and not to engage into aggressive or menacing attitudes towards the site personnel, the local communities or any intruder or person threatening the site integrity.
- To accomplish my missions of securing the site perimeter at all times with the means at my disposal without bringing in other means that are not part of my equipment (sticks, knives).
- To respect the chain of command and declare all incidents according to the instructions that were communicated to me.
- Never to use force in any form unless my life is directly threatened as per instructions that were communicated to me.
- To arrest site intruders and to let them go with a warning in case no harm was done on site.
- To report intruders to the police forces in case of flagrant theft or degradation.
- To welcome local community members who want to raise a claim to the project and to orientate them to the grievance management mechanism.
- In case of infraction to this code of conduct, to be exposed to first warning followed by dismissal for serious misconduct in case of recurrence of the infraction to this code of conduct.”

B Security responses

[CC- 811] The tables below present the potential responses to be adopted by security personnel and the responses that are strictly prohibited.



Table 4-4: Allowed security Responses

Passive deterrents	
Access Control	Physical measures to prevent access to or passage through restricted areas, such as gates, signage, guards, fences, surveillance systems, etc.
Visual presence of security	Guards (and guard dogs) stationed at access points to process ingress and egress, but who also serve as a visible deterrent
Observe and report	Guards observe, report, and record activity.
Active deterrents	
Verbal instructions, warning, refusal of passage/entry	Guards issue verbal warnings to people who attempt or threaten to attempt to circumvent physical security measures. The warnings may include notice that additional security is being called.
Show of force	Guards increase their numbers or demonstrate their weapons as visual indications of potential escalation of security response.
Reasonable detention	Guards detain people discovered to have trespassed or committed theft, etc., on the company site for only as long as it takes for police to arrive and assume responsibility.
Escalation	
Use of nonlethal force	Guards use nonlethal force defensively (e.g., batons, nonlethal ammunition) to repel an external physical threat, subject to existing use-of-force protocols.
Arrest by public authorities	Guards request the intervention of police to apprehend and/or arrest people alleged to have committed criminal acts such as theft, trespass, assault.
Lethal force (to protect life)	Guards use lethal force defensively to protect against an immediate threat to human life, subject to existing use-of-force protocols.

Table 4-5: Prohibited security responses

Security response	Description
Intimidation or harassment	Guards use their position (or, in particular, their weapons or guard dogs) as a tool for intimidating or harassing community members, especially where no immediate risk or threat is present
Inappropriate detention	Guards detain people either for no legitimate reason, or for longer or in conditions other than what is acceptable.
Inappropriate use of force	Guards use nonlethal force offensively, or outside of acceptable use-of-force protocols, or for illegitimate reasons (such as for purposes of criminal activity, etc.).
Assault or torture	Guards detain people and physically or psychologically harm a detainee
Inappropriate use of lethal force	Guards use lethal force offensively, or outside of acceptable use-of-force protocols, or for illegitimate reasons.

C Use of force protocol

[CC- 812]A use of force protocol is set up, which describes the situations where the use of force both non-lethal and lethal is prohibited.

[CC- 813]Based on this protocol, the use of force covers any action that might bring physical harm to a third-party including: hits on the head of body, twisting of body members, tying hands or other body parts, pushing to make fall, strangling, stabbing, etc.

[CC- 814]The use of force must always be prohibited unless the security personnel's life or another person's life is directly threatened by a third-party. A life-threatening situation is described as a situation where the life of a person is at immediate risk because the assailant is equipped with one or several sharp objects, firearms or any military devices that might cause injuries or death.



[CC- 815] The protocol is clearly communicated to the guards so that they know how to behave in each situation.

D Training

[CC- 816] The Contractor trains the security personnel on his role and responsibilities upon recruitment and on a regular basis afterwards. Training should focus on the following topics:

- Missions of the personnel: securing the site with the means at their disposal, relying on a defined chain of command in case of incidents.
- Typical security responses to have in the face of various situations, as set up in the use-of-force protocol.
- Appropriate behaviour covering the physical attitude, verbal language that the personnel must adopt at all times. Both should be benevolent, calm and peaceful and devoided of any aggressive tone or menacing gestures.
- Role in community relations: explain that the personnel is exposed to community interactions and as such, must accept these interactions and try to assist local individuals whenever they have a query and inform them about the existence of a grievance mechanism where communities can lodge their claim.
- Use of force: the use of force protocol must be followed at all times, and force is allowed only in life-threatening situations and prohibited in all other situation.
- Sexual harassment: remind the personnel that engaging into sexual harassment against women from the local communities is prohibited and will lead to sanctions as per the Code of conduct.
- Chain of command

E Recourse to public police forces

[CC- 817] The cases where recourse to public police forces and the army will be required for support are as follows:

- In case of intrusion on site without theft, the intruder will be escorted out of the site premises with a warning not to reiterate the intrusion.
- In case of intrusion on site and theft, degradation of material, the gendarmerie is called upon to perform an inquiry.
- In case of civil unrest targeting the site (large-scale protests, blockades of site entrances, use of firearms or explosive devices against the site), the army must be called in.

[CC- 818] The decision to call on the public police forces rests in the Contractor Security Project manager's hand.

F Daily report and chain of command

[CC- 819] The security personnel must make a daily oral or written report on its activities to the construction site manager and the Employer.

[CC- 820] In case of intrusion on the site or any other threat, the personnel will contact immediately the site manager who will contact the Employer to decide on the actions to be taken (no action, call on the police, etc.).

[CC- 821] The guardhouse will be equipped with a list of contact number and a scheme presenting the chain of command.

4.23.8.5 Recording, Reporting and Investigation Of Incidents

A General Requirements

[CC- 822] The Contractor shall develop and maintain a comprehensive Incident Management Procedure to effectively address incidents occurring during the Works and Services. This procedure shall include protocols for recording, reporting, investigation, documentation, and follow-up actions for all types of HSSE-related incidents.



[CC- 823] All employees shall be actively encouraged to report unsafe actions and conditions through HSSE Observations, as well as near misses, to ensure proactive identification and mitigation of potential hazards.

[CC- 824] In instances where the complexity or severity of an incident warrants external expertise, the Employer reserves the right to request that incident investigations be conducted by a nominated incident investigator and investigation team, arranged by the Employer. The Contractor shall fully cooperate with such investigations and provide all necessary support and information.

[CC- 825] The Incident Management Procedure shall outline clear responsibilities and timelines for incident reporting, investigation, and resolution. It shall also include measures for communicating incident findings and lessons learned to relevant stakeholders to prevent recurrence and improve HSSE performance.

B Incident Reporting and Documentation

[CC- 826] The Contractor shall establish protocols for timely reporting of HSSE-related incidents as required by the Employer, including procedures for notifying relevant stakeholders and regulatory authorities as required by applicable laws and regulations.

[CC- 827] Incident documentation shall be thorough and accurate, capturing relevant details such as date, time, location, individuals involved, witnesses, and a description of the incident and its consequences. Records shall be maintained in a secure and accessible manner for future reference and analysis.

C Follow-Up Actions and Corrective Measures

[CC- 828] Upon completion of incident investigations, the Contractor shall implement appropriate follow-up actions and corrective measures to address root causes and prevent the recurrence of similar incidents.

[CC- 829] Follow-up actions may include revisions to work procedures, additional training or competency assessments, equipment inspections or modifications, and communication of lessons learned to relevant personnel.

[CC- 830] The effectiveness of follow-up actions shall be monitored and evaluated to ensure that corrective measures are implemented promptly and are effective in preventing future incidents.

4.24 Traffic

4.24.1 Transportation Management Plan

[CC- 831] The Contractor is tasked with ensuring safe road transportation practices through a comprehensive Transportation Management Plan (TMP) developed following legal requirements and Employer specifications. This plan shall encompass various aspects of transportation safety, including but not limited to:

- Ensure all drivers and operators involved in project transportation activities possess a valid license or certification from an approved authority.
- Conduct thorough vetting of drivers during the employment or Contractor onboarding processes to verify their experience, service records, licensing, and training.
- Provide approved third-party defensive driving training for all project drivers.
- All project vehicles must be equipped with In-Vehicle Monitoring Systems (IVMS) to ensure compliance with safety protocols and monitor driving behaviour. At a minimum, the IVMS should track parameters such as speed, location, harsh braking, and acceleration patterns. In-Vehicle Camera systems to record all journeys are required.
- Implementing systems for regular inspections and maintenance of all vehicles and mobile equipment (see more details below). Maintenance will be carried out following the manufacturer's instructions. The Contractor shall have a complete maintenance plan



including maintenance records, maintenance register and procedures. Only qualified mechanics will carry out maintenance and repairs on equipment.

- Fatigue management, driving at night, maximum allowed driving hours, rest periods.
- Implementation of Journey Management Plans for transportation beyond project areas exceeding 4.5 hours, or based on risk assessment findings.
- Weather monitoring and preventive actions to address hazardous weather conditions such as temporary driving restrictions in extreme weather conditions or hazardous situations, guided by weather forecasts.
- Zero Tolerance for Alcohol or Drug Use while driving, including regular testing of drivers to ensure compliance.
- Set up an appropriate medical surveillance will be developed for drivers that includes screening for chronic diseases (hypertension and diabetes), substance abuse, compliance with specific physical standards and no medical exclusions that limit the ability to operate mobile equipment (e.g. epilepsy).
- Vehicle Registration and Compliance, ensuring all vehicles and mobile equipment meet local legislative standards.
- Pre-Operational Safety Checks for all vehicles and mobile equipment before operation by the driver or operator to ensure that safety features including headlights are in working order at all times, for instances whereby work is required to be undertaken during the first hours of darkness.
- Incident reporting of all transport-related incidents to the Employer.
- Audible Back-Up Alarms and flashing beacon installation on all site vehicles and equipment.
- The Contractor is responsible for the installation of safe pedestrian walkways appropriate to risk assessments and adherence to speed limits, communication protocols, and mandatory seatbelt usage during transportation operations.
- Speed limits will be set up and adapted depending on the vehicles: 30 km/h through villages and 60 km/hr for all surfaced S137 road sections.

4.24.2 Inspection and Maintenance of Equipment and Vehicles

4.24.2.1 Equipment Acceptance and Compliance

- [CC- 832] The Contractor shall develop and maintain a systematic process for the acceptance check of all machinery, power tools, vehicles, and mobile construction equipment brought to the site before they are put into operation. This process shall ensure compliance with site-accepted standards and specifications.
- [CC- 833] Before deployment, all machinery, power tools, vehicles, and mobile construction machines shall undergo thorough inspections to verify their compliance with site standards.
- [CC- 834] The acceptance check process shall include verification of equipment functionality, safety features, and documentation such as manuals, maintenance records, and certifications. Equipment that meets the required standards shall be properly documented and logged for future reference, and provided with the applicable site access verification.

4.24.2.2 Equipment and Vehicle Maintenance

- [CC- 835] The Contractor shall establish a comprehensive maintenance regime for all machinery, power tools, vehicles, and mobile construction equipment used at the site. This program shall include regular inspections, servicing, and repairs to ensure optimal performance and safety.
- [CC- 836] Maintenance activities shall be conducted in accordance with the manufacturer's recommendations, industry best practices, and applicable regulations. Emphasis shall be placed on safety-critical components such as brakes, tyres, steering, and lighting systems.



- [CC- 837] The maintenance program shall be subject to regular review and evaluation to identify opportunities for improvement and ensure compliance with established standards. Any deviations or deficiencies shall be addressed promptly to minimize downtime and maximize operational efficiency.
- [CC- 838] Qualified personnel shall be responsible for performing maintenance activities and documenting all inspection and repair activities. Records shall be maintained for each vehicle and mobile equipment, including maintenance schedules, work performed, and parts replaced.

4.24.2.3 Safety-Critical Equipment Inspection and Maintenance

- [CC- 839] The Contractor shall establish a robust system for the inspection and maintenance of safety-critical equipment at the site. This system shall adhere to the manufacturer's recommendations, as well as risk-based and condition-based criteria, as relevant to ensure optimal performance and safety.
- [CC- 840] The inspection and maintenance system for safety-critical equipment shall be subject to review and approval by the Employer. This includes the establishment of inspection schedules, maintenance procedures, and documentation protocols to track equipment status and performance over time.
- [CC- 841] Regular inspections shall be conducted by qualified personnel to identify any defects, wear and tear, or potential safety hazards. Maintenance activities shall be carried out promptly to address any issues detected during inspections.
- [CC- 842] The Contractor shall maintain accurate records of all inspection and maintenance activities for safety-critical equipment, including dates, findings, actions taken, and personnel involved. These records shall be made available for review by the Employer and regulatory authorities upon request.

4.25 Hazardous Material Management

4.25.1 Handling and storage of hazardous materials and substances

4.25.1.1 Hazardous substance handling and storage management plan

[CC- 843] The Contractor shall prepare and implement a Hazardous Substance Handling and Storage Management Plan. The plan shall comply with the Malawi regulations and shall be carried out in such a way as to avoid any incident or accident that could have an impact on the health of the employees, the works and materials present and/or the environment.

[CC- 844] A substance is considered dangerous if one or several of its properties render it hazardous.

[CC- 845] The procurement policy shall ensure and document that any alternative to hazardous substances shall be considered where possible following the standard mitigation hierarchy.

[CC- 846] The plan will be applicable during the construction phase to all project activities involving the handling, storage and use of products catalogued as hazardous.

[CC- 847] The information that will be presented in such a program will cover the following aspects:

- Identification of appropriate storage sites;
- Procedure for the registration and follow-up of any product of a dangerous nature including in particular the establishment of a safety data sheet for each product;
- The pesticides to be used will comply with national requirements and WHO recommendations;
- Handling and storage conditions, including product compatibility;
- Emergency procedures in case of a spill;



- Conditions for final treatment of residues or recycling.

4.25.1.2 Storage of hazardous substances

[CC- 848] Construction site layout will adopt appropriate safety distances between onsite areas for storage and handling of hazardous substances and i.e. Construction Camp, Operators' Village, and offsite residential areas.

[CC- 849] Facilities for storage and handling of hazardous substances at the different Working Areas of the Contractor will be equipped with pollution prevention and protection systems, clean-up plans to manage accidental spills and leaks will be prepared.

[CC- 850] A register of hazardous substances presents on site shall be kept up to date and include the quantities present per storage location (data necessary in particular in the event of fire).

[CC- 851] The storage of hazardous substances shall be easily accessible for the transfer of these substances or for access by firefighters. This storage shall be kept away from offices, lodging and eating places, vegetated areas and flood-prone areas.

[CC- 852] Storage of hazardous substances shall be located in areas outside of any network.

[CC- 853] Tanks shall be protected against shocks and equipped with gripping devices.

[CC- 854] The compatibility of the products between them shall be taken into account to define the storage locations of each substance.

[CC- 855] All storage shall be equipped with a retention basin with a capacity that meets the minimum requirements of the IFC EHS guidelines.

[CC- 856] The largest volume of chemicals anticipated in this Project are hydrocarbons (diesel). The Contractor will therefore define the conditions to be respected for the storage and refueling of the equipment. Hydrocarbon storage sites will be identified by the Contractor and organized on dedicated and secured platforms: waterproof concrete slab surrounded by a low wall ensuring the retention of a volume at least equal to 110% of the largest container located on the platform. The platform is covered and its evacuation is equipped with an oil separator. Strict procedures will be defined for the filling of the tanks of the machines (type of equipment, dedicated areas).

[CC- 857] The other chemicals will be stored in closed containers located on a sealed slab surrounded by a merlon, capable of storing at least 110% of the volume of the largest container deposited. Each storage site will be equipped with a recovery pit, absorbents and fire extinguishers. Standardized signs will warn of the presence of toxic products.

[CC- 858] Product safety data sheets will be available on the site and from the environmental coordinator of the company concerned. The storage of dangerous and polluting products will be regularly inspected to detect possible leaks or damage to containers. At each site, employees responsible for handling chemicals will receive special training on good practices and emergency measures in the event of an incident.

4.25.1.3 Transport of dangerous substances

[CC- 859] Transportation of hazardous substances, including wastes resulting from the use of such substances, shall follow the requirements of Malawi regulations, the IFC and World Bank General Environmental, Health and Safety Guidelines, including the following requirements:

- The good condition of the vehicles and load (no obvious defects, leaks or cracks, lack of equipment devices),
- The load of the vehicle,
- Hazard labels and prescribed vehicle markings.
- The Employer reserves the right not to authorize the transport, if the Employer judges that the transport unit or the driver does not meet the regulatory conditions (documents presented are invalid, transport unit does not conform...).



- The carrier shall put a protective net on the open skips at the departure of the site and for the whole duration of the transport.
- Tanks will be partitioned to prevent excessive liquid sway.
- The carrier shall ensure that the equipment prescribed by regulation for the driver is on board the vehicle.

4.25.1.4 Storage and use of explosives

[CC- 860] Maximum safety conditions are required for the handling of explosives. Thus, the same degree of consideration shall be given to all phases involved (transport, storage and use).

[CC- 861] In the event of a contradiction in the use of explosives, the Contractor shall comply with the safest of the stipulations contained in each of these three parts.

[CC- 862] A specific explosives management plan shall be drawn up by the Contractor to identify all hazards associated with the use of these products. It will propose all appropriate measures to be implemented to ensure the safety of personnel using explosive material and of the local population living near the area of activity. The management of explosives will be carried out in accordance with national regulations and international standards. This part provides the outline and recommendations of this plan for (i) transport from the storage site to the use sites, (ii) storage, and (iii) handling and use of explosives.

[CC- 863] For activities involving the handling of explosives, a qualified and competent person shall be designated as the explosives supervisor and will ensure the proper application of safety procedures. Any activity undertaken with explosives will be carried out during daylight hours only and always under the control of the supervisor. They will be suspended in the event of imminent storms or thunderstorms and threat, without the Contractor being entitled to any compensation.

[CC- 864] An explosive firing procedure will be written by the Contractor. It will mention all the actions and measures to be implemented to ensure the safety of the employees carrying out the firing operations and to limit the impact on the environment. It shall be specified that a safety perimeter of at least 50 m excluding all persons and animals around the charge shall be respected. This procedure shall also include the practices to be implemented in the event that the firing of explosives fails.

[CC- 865] A daily report will be written and will mention the following points:

- The shots fired: load, results;
- Missed shots: reason for the failure of the shot;
- Quantity of explosive used and counting of the remaining stock.

A Storage of explosives

[CC- 866] The storage of explosives will be continuously under the control of the Contractor. The storage area will be located close to the base camp and away from any dwelling, at a minimum safety distance to be validated with the relevant authorities.

[CC- 867] No combustible material will be located within 15 m of the store. Signs indicating "danger zone", "restricted access", "explosives storage" and "no smoking" will be posted around and in the storage area in a language understandable to employees, contractors and the local population.

[CC- 868] The store will be under the responsibility of the Explosives Supervisor who will enforce all good safety practices for persons having access to the storage. He will also be in charge of the inventory of products which shall be up to date at all times. A certified technician may possibly assist this supervisor.

[CC- 869] Surveillance and security systems (camera, fence, guard post...) operating 24 hours a day and 7 days a week will ensure the security of the store. A group of military personnel will be especially detached to ensure the continuous surveillance of the explosives depot. A minimum number of people will be authorized to enter the storage area. The list of these persons will be continuously updated and available.



[CC- 870] At the end of the assignment, the arrangements to be made in case of unused or unusable explosives are to be proposed by the Contractor and are submitted to the Employer for observation. As a general rule, damaged explosives are safely destroyed according to the manufacturer's recommendations.

B Transportation of explosives

[CC- 871] The transport of explosives only concerns the transport between the storage area and the Working Area.

[CC- 872] The use of any heat source in the vicinity of vehicles transporting explosives is prohibited. Explosives transport vehicles will be maintained and regularly checked and will be driven by drivers with an appropriate and valid driver's license. Each explosives transport vehicle shall maintain a safety distance of at least 25 m from the vehicle in front of it.

[CC- 873] The explosives are transported in secure, locked and firmly secured boxes. The detonators can be moved together with the explosives, in the same truck, as long as they are separated and stored in secure containers (Faraday cage type).

4.25.2 Spill contingency plan

[CC- 874] Prior to mobilization on Site, the Contractor shall prepare, submit and implement a Spill Contingency Plan demonstrating its capability and state of readiness for responding and taking appropriate action in the event of a hazardous substance spill.

[CC- 875] The Plan includes the following:

- Flow chart of response organization.
- Action Plan: Potential spill sizes and sources for each hazardous material on site, potential environmental or social impacts of spill (include worst case scenario), procedures (including alternative action in case of impeding environmental conditions).
- Procedures for initial actions.
- Spill reporting procedures.
- Procedures for containing and controlling the spill e.g. on land, water, snow, ice, etc.
- Procedures for transferring, storing, and managing spill-related wastes.
- Procedures for restoring affected areas.
- Resources available for responding to spills: On-site resources e.g. spill kits, booms, sorbent materials, earth moving equipment; and Off-site resources e.g. contact numbers for deployment and time estimate.
- Training Program: Outline of training program, training schedule and record keeping.

[CC- 876] The locations of adequate and suitable spill response kits shall be identified in the C-ESMP based on the locations of potentially polluting works.

[CC- 877] All generators and other power-generating equipment used during construction shall have secondary containment.

[CC- 878] In the event of an accidental spill, the objective of this plan is to have adequate human and material resources in order to reduce the response time and thus limit the pollution to the smallest possible area. This plan helps to limit the impacts on the biophysical environment in the event of an accidental spill and to limit the indirect impacts on the human environment, in particular the impacts on health.

[CC- 879] The main risks during the construction phase concern oils, fuels, solvents, paints, transformer coolants, etc., especially during transport to the site.

[CC- 880] Spills of less than 200 liters can be managed locally by the E&S Manager present on site as a Level II environmental event (non-compliance).



[CC- 881] For larger volumes, they will be considered as Level III non-compliance. Local administrations and services to be notified in case of emergency at the local and regional level will be identified and informed of the response procedure in place.

[CC- 882] To meet the objectives of this program, a risk response plan will be prepared by the Contractor in accordance with (i) the emergency and major hazard response procedures otherwise required by the Employer and (ii) the requirements of ISO 14001.

4.26 Camp and Accommodation

4.26.1 Site Selection and Layout

[CC- 883] The Contractor shall select safe and secure locations for labour camps as agreed with the Employer. Areas prone to flooding, landslides, rockfalls, or other natural hazards should be avoided.

[CC- 884] The camp layout must ensure the safe movement of personnel and vehicles, with a clear separation of work, living, and recreational areas.

4.26.2 Accommodation Standards

[CC- 885] The Contractor shall provide sturdy and weather-resistant shelters.

[CC- 886] Adequate space per person must be ensured to prevent overcrowding and maintain comfort as specified in applicable standards.

[CC- 887] Proper ventilation or heating, systems suitable for the local climate must be included.

[CC- 888] Housing should ensure structural safety and good levels of decency, hygiene, and comfort.

[CC- 889] The following general requirements are applicable for lodging:

- A separate bed for each worker;
- Adequate headroom, providing full and free movement;
- Suitable inside dimensions for sleeping space;
- Beds should not be arranged in tiers of more than two;
- Bedding materials should be reasonably comfortable;
- Bedding and bedframe materials should be designed to deter vermin;
- Separate accommodation of the sexes;
- Adequate natural light during the daytime and adequate artificial light;
- Adequate ventilation to ensure sufficient movement of air in all conditions of weather and climate;
- Heating where appropriate;
- Adequate supply of safe potable water;
- Adequate sanitary facilities (see below);
- Adequate drainage;
- Adequate furniture for each worker to secure his or her belongings, such as a ventilated clothes locker which can be locked by the occupant to ensure privacy;
- Common dining rooms, canteens or mess rooms, located away from the sleeping areas;
- Appropriately situated and furnished laundry facilities;
- Rest and recreation rooms and health facilities;
- As far as practicable, sleeping rooms should be arranged so that shifts are separated and that no workers working during the day share a room with workers on night shifts.



4.26.3 Sanitation, Hygiene and the provision of Water

[CC- 890] The Contractor shall ensure hygienic living conditions for workers, including clean and well-maintained accommodations, dining and kitchen facilities, and ablution and sanitation facilities.

- The Contractor shall install or provide sufficient sanitation facilities, including toilets and showers, ensuring regular maintenance and cleanliness.
- Access to adequate, clean, potable water for drinking, cooking, and personal hygiene must be provided. Special attention to water quality and quantity is essential. To prevent dehydration, water poisoning and diseases resulting from lack of hygiene, workers should always have easy access to a source of clean water. An ample supply of potable water must be available in the same buildings where bedrooms or dormitories are provided. Drinking water must meet WHO drinking water standards and water quality must be monitored regularly.
- Potable water may be produced by dedicated catchment and treatment facilities.
- Sanitary facilities must include at least one toilet, one wash basin, and one tub or shower for every 15 persons, conveniently located to prevent nuisances. These facilities should meet minimum health and hygiene standards, offering reasonable comfort levels, including hot and cold running water.
- Separate facilities must be provided for men and women, with independent ventilation to the open air. Soap and hygienic paper should be adequately stocked.

4.26.4 Recreational Facilities

[CC- 891] Recreation facilities shall be provided at the Contractor's camp for use by Contractor's personnel:

- A separate indoor fitness centre with treadmills, rowing and cycling machines, weight machines, free weights, etc. shall be provided.
- The fitness area shall be suitable to accommodate up to ten users at any one time.
- The fitness center shall include good quality equipment consistent with the standards adopted by commercial fitness facilities in Europe.
- A minimum of three treadmills, one rowing machine, and three stationary bicycles shall be provided.
- A good quality universal gym shall enable a range of exercises. Free weights shall be provided as dumbbells, barbells, and kettlebells. A variety of training benches shall be provided.
- The indoor fitness center shall include entrance lobby, washrooms, and locker/change room. The indoor facilities will be used exclusively by the Employer during the Works.
- A shared outdoor jogging track, mini-football field, basketball, 25 m swimming pool, and children's play area shall be provided adjacent to the indoor fitness center.
- The Contractor shall provide staff for management, cleaning, and maintenance of the facilities during construction.

4.26.5 Accommodation Health and Safety Requirements

[CC- 892] Design, build and manage accommodation, camp facilities and other Project infrastructure to prevent rodents and other pests such as snakes from gaining access to accommodation, kitchens and food/water storage areas.

[CC- 893] Mosquito prevention is crucial to limit exposure to the plasmodium parasite carried by mosquitoes. The following control measures will be required as a minimum :

- Netting and Screening
 - Provide mosquito nets for all sleeping areas.



- Install mesh screens on doors and windows to prevent mosquitoes from entering living quarters.
- Elimination of Breeding Sites
 - Remove standing water where mosquitoes can breed, such as in buckets, puddles, and containers.
 - Ensure proper drainage around the camp to prevent water accumulation.
- Insect Repellents
 - Supply insect repellents to all workers.
 - Encourage the use of repellents, especially during peak mosquito activity times.
- Regular Inspection and Maintenance
 - Conduct regular inspections to identify and eliminate potential mosquito breeding sites.
 - Maintain cleanliness in and around living areas to reduce mosquito attractants.
- Chemical Control
 - Use safe and approved insecticides to treat areas with high mosquito activity.
 - Conduct periodic fumigation of the camp area as necessary.

[CC- 894] Fire safety measures must include the installation and maintenance of fire equipment (alarms, extinguishers, etc):

- Workers must be trained in fire procedures.
- Bedding must not contain flammable materials.
- Radiators and other heating apparatus must be placed to avoid fire risks and shielded to prevent discomfort.
- Safety exits must be marked, with adequate means of escape provided and properly maintained.

4.26.6 Temporary Mobile Camps – Pioneer camp

[CC- 895] Temporary mobile or fly camps present unique challenges due to their remote and temporary nature. Similarly for pioneer camps which might be established in the Project Area before the Construction Camp is built.

[CC- 896] While these requirements may differ from standard camp lodging, adherence to industry norms and rigorous risk assessment protocols remains essential. The Contractor shall develop protocols for the safe setup and dismantling of fly camps when used.

[CC- 897] The Contractor shall therefore adhere to the following:

- Location and Site Selection: Select camp locations carefully, considering accessibility, terrain, environmental impact, and proximity to essential resources such as water and fuel.
- Infrastructure and Facilities: Provide basic infrastructure, including sleeping accommodations, dining facilities, sanitation facilities (toilets, showers), and waste management systems.
- Safety and Security: Implement safety and security measures according to project requirements, including adequate lighting, perimeter fencing or security patrols, emergency security response procedures, and communication systems suitable for remote areas.
- Fire safety measures: Fire safety measures, including fire prevention protocols, detection systems and fire suppression equipment should be in place to protect fly camp accommodation areas from fire hazards.



- Health and Hygiene: Promote good hygiene practices, ensure the provision of clean drinking water, provide handwashing facilities, and regularly sanitize common areas to prevent the spread of illness and disease.
- Environmental Impact: Minimize environmental impact through responsible waste management, recycling initiatives, and adherence to environmental regulations.
- Emergency Preparedness: Include Temporary Mobile Camp Emergency protocols in the Contractor ERP, including evacuation procedures, first aid capabilities, and communication protocols to address potential hazards or emergencies.
- Workforce Accommodations: Ensure adequate and comfortable accommodations for the workforce, including considerations for privacy, rest, and recreation during downtime.
- Catering and Nutrition: Provide nutritious meals that meet dietary requirements and cultural preferences, with proper food handling and storage practices to prevent foodborne illnesses.
- Communications and Connectivity: Establish reliable communication systems to maintain contact with the outside world and provide support in case of emergencies or unforeseen circumstances.

4.27 Emergency Preparedness and Response

4.27.1 General Requirements

[CC- 898] The Contractor shall develop an Emergency Preparedness and Response Plan (ERP) as part of its HSSE Program for implementation for the scope of its activities, and submit it for acceptance by the Employer.

[CC- 899] The Contractor's ERP shall be aligned with the Employer's emergency preparedness and response system and clarify areas of responsibility and notification lines in an emergency.

[CC- 900] The Contractor's ERP shall define:

- Emergency preparedness requirements
- Emergency response organization and responsibilities
- Emergency response and evacuation resources, equipment and requirements
- Notification protocols and action plans
- Medical service providers and associated coordination measures
- Recovery measures to establish normal conditions after emergencies

4.27.2 Special requirements

[CC- 901] The Contractor shall ensure sufficient resources to deal with possible emergencies during the execution of their scope of work. The Contractor will ensure the following emergency response measures:

- The Contractor shall maintain suitable and fully stocked first aid kits at all work areas, vehicles and strategic locations as per Employer standards.
- The Contractor will ensure sufficient first aiders to administer first aid, and stabilizing purposes prior arrival of trained medical professionals. First aiders shall be appointed at a ratio of 1:25 and be available at all work fronts.
- The Contractor shall ensure suitably trained fire wardens among the workforce to effectively deal with fire emergencies. Fire wardens shall be certified by an approved third-party service provider.
- The Contractor shall enter into contractual agreements with Project-approved medical service providers to ensure rapid and effective treatment, including transportation and specialised healthcare facilities or hospitals.



- Each employee shall be covered with appropriate and sufficient medical insurance for the duration of the Project. Medical insurance shall also cover international evacuation to medical facilities, should it be necessary.
- The Contractor shall maintain an emergency arrangement for effective mobilisation outside normal working hours for emergencies at the Project. The Contractor shall at all times keep the Employer updated with a list of responsible staff for emergencies and their contact details.
- The Contractor shall ensure sufficient and available emergency evacuation means for injured or ill-health employees. The evacuation means shall meet approved standards by the Employer.
- Emergency drill exercises shall be scheduled as per Employer requirements.

4.28 Budget

The cost of the measures under the responsibility of the EPC Contractors is included in the construction costs.



5 Measures Under the Responsibility of MHPL

This section outlines the general environmental and social responsibilities that fall upon MHPL. A number of management actions listed in the present ESMMP are the responsibility of MHPL, even though in many instances responsibilities will be delegated to the Employer's Representative. At this stage no distinction is made between MHPL and the Employer's Representative responsibilities.



5.1 Environmental and Social Management System

5.1.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> The MHPL Environmental and Social Management System (ESMS) will provide structure and integrate the rules and objectives into MHPL management and business operations, through clearly, repeatable defined processes. The ESMS objective is that: Systems, processes, staff and resources are available in time within MHPL for the effective implementation of the ESMMP in accordance with national regulation and Lenders environmental & social policies.
Component	<ul style="list-style-type: none"> A management system comprises trained, committed people routinely following procedures. MHPL ESMS for the projects will be structured into two main components: ESMS 1.- System Development: Documented company policies and Health, Safety, Environmental & Community procedures will be established to implement management actions committed in this ESMMP and to ensure continuity when people in the organisation change. ESMS 2.- System implementation: Trained, committed people will routinely follow these procedures.
Timeframe	The two components will be developed during the detailed design stage, and implemented in full during the main construction period and the operational phase
Responsibility	MHPL
Performance Criteria	<p>ESMS 1:</p> <ul style="list-style-type: none"> Availability and relevance of policies and procedures. GIS-based database available: software, computer, dedicated staff. Availability and completeness of the Compliance Execution Plan. <p>ESMS 2:</p> <ul style="list-style-type: none"> Annual Work Plans available in December during operation. Staff available on time, with the right experience and profile at the beginning of the construction and operation periods: Training and Human Resources records, showing CV and appropriate qualifications. Progress Activity Reports prepared on time and covering most E&S issues.

5.1.2 Management Actions during Construction

5.1.2.1 ESMS 1.- System Development

[OC- 1] Policies and Procedures	<ul style="list-style-type: none"> Develop a set of environmental & social policies to (i) summarise the commitments made by MHPL to manage the E&S risks and (ii) establish the expectations for conduct in all related aspects of the Project implementation. The following issues will be covered: Environmental Protection, Community Health and Safety, Labour and Working Conditions (including a Human Resources Policy in alignment with Malawi laws, Lenders, ILO requirements).
	<ul style="list-style-type: none"> In support to the E&S policies, develop and document a set of internal procedures, including but not limited to, the following topics: <ul style="list-style-type: none"> Roles and responsibilities of the Project personnel. The roles required to implement the ESMMP and to establish and maintain the ESMS are outlined in [OC- 5] for MHPL and in Section 4.1.3 for the Contractor. These roles need to be reviewed and incorporated into organisational structures for the various phases of the early works and main construction period. Co-ordination and responsibilities between MHPL E&S team, MHPL Technical team and the Employer’s Representative for the review of CESMMP documents as well as any changes in design and procedures as ruled by the Management of Change Procedure in Section 5.2 of this ESMMP. Policies and strategies, e.g. Code of Conduct, Employment policy, Environmental, Social Policies, Community Investment, Waste Management.



	<ul style="list-style-type: none"> Procedures, e.g. Project’s environmental incident reporting & investigation, Grievance, Documentation and record keeping, Security & Human Rights, Progress activity reporting, Communication. Registers: Commitments, Communication, Stakeholder, Sensitive Location, Permits, Legal. Database: Photos, Environmental incidents, Social Grievances, Assets inventory & compensation, GIS, monitoring results, safety accidents.
[OC- 2] Finalize the 2024 ESIA studies after disclosure	<ul style="list-style-type: none"> Summarize all comments and responses collected in 2024 during the disclosure period of the 2024 ESIA studies into a Public Consultation report. Update the 2024 ESIA studies accordingly. Post on the MHPL website the approved documents
[OC- 3] Streamline the planning and implementation of overlapping sub-plans	<ul style="list-style-type: none"> List all management actions from the various ESMMP subplans that target the same receptors. This is particularly necessary for the E&S actions targeting the communities around the two Mpatamanga reservoirs who are the subject of the Livelihood Restoration, Community Health, Influx, and Community Development sub-plans. Identify synergies to optimize the organizational arrangements and ensure consistence between actions and avoid gaps. Prepare detailed scheduling of management actions by objective and target groups, encompassing actions of all sub-plans and establish links between actions, regardless of the initial sub-plan allocation.
[OC- 4] Compliance Execution Plan	<ul style="list-style-type: none"> Prepare a Compliance Execution Plan for the construction period. It will detail: (i) the conditions required by the Environmental Authorities through the Environmental Permit obligations, (ii) the E&S Management actions committed through the present ESMMP, including the necessary coordination with the Governmental Agencies in charge of third party management actions, (iii) the Lenders covenants attached to the financing agreements, and (iv) the relevant E&S national regulation framework and possible changes. Conflicts between the national and international plan requirements will be identified and a process for addressing both sets of requirements identified. The Compliance Execution Plan will be prepared and implemented by the MHPL E&S Manager. It will indicate (i) the persons within MHPL or the EPC Contractors who owns the compliance requirement, (ii) the methods to be used to comply with the requirement and where appropriate, performance standards and criteria to be satisfied, and (iii) whether the associated activities will be executed by MHPL, MHPL’s consultants or others. The Compliance Execution Plan will then be further scheduled in Work Plans as provisioned through Management Action [OC- 5].

5.1.2.2 ESMS 2.- System Implementation

[OC- 5] Annual Work Plan and resource scheduling	<ul style="list-style-type: none"> End of each year, prepare an Annual Work Plan for the execution of the ESMMP Management Actions by MHPL for the coming year. Establish dependencies with the Construction Activities (e.g. closure of the diversion tunnel) and between the environmental and social Management Actions (e.g. public information on water quality monitoring). Allocate responsibilities within the MHPL Environmental and Social team for each activity and specify the estimated effort required for each of the team member to achieve these activities. Where sub-consultants are to be involved (e.g. fisheries monitoring), specify the time and effort required to contract and supervise and specify who owns the management of their contract. List the milestones for all planned deliverables (e.g. monitoring report) and meetings.
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[OC- 6] Mobilise human resources	<ul style="list-style-type: none"> • Staff the Environmental and Social Team. • Describe individual accountability for each of the ESMMP measures under the responsibility of MHPL. • Allocate to each staff member the equipment required for fieldwork, reporting, transportation and specific monitoring/survey equipment and training, as required.
[OC- 7] Community Liaison Officers	<ul style="list-style-type: none"> • Recruit Community Liaison Officers (CLOs) from, or originating from, the affected communities (e.g. Kaliati Group Village, Kunthembwe, Namputu Group Village, Feremu Group Village, Ngwenyama Group Village). • Assess if CLOs can be accommodated within their communities, as one of the key roles of CLOs is to convey project information to communities as frequently as possible, and inform MHPL of any issues in communities resulting from the project activities. Execute as applicable. • Provide training on reporting and key messages communication. • Organize weekly meetings in the Project site office, to share observations, lessons-learnt, and updates on project progress activities.
[OC- 8] Execution and monitoring of Work plan activities	Execution and monitoring of the Work plan activities planned in [OC- 5].
[OC- 9] Progress Activity Reporting and Communication:	<p>Prepare progress activity reports on environmental and social performance to meet the following requirements:</p> <ul style="list-style-type: none"> • Project Incident Notification to Lenders: if and when required • Six-monthly Environmental & Social Report to Lenders • Six-monthly Environmental & Social Performance report in [local language] and English on the Project’s web site and Public Information Centres.

5.1.3 Management Actions during Operation

5.1.3.1 ESMS 1.- System Development

[OO- 1] Policies and Procedures:	<ul style="list-style-type: none"> • In support to the E&S policies, as for the construction phase, develop and document a set of internal procedures for the operation phase, including but not limited to, the following topics: <ul style="list-style-type: none"> - Organizational Structure and Responsibility - Communication - Environmental and Social Management System Documentation; Documents control - Monitoring and Measurement - Reporting requirements. - Management of the grievance mechanism. - Human Resources Policy in alignment with national, Lenders and ILO requirements, as well as the principles of the SA 8000 standard, including specific mention of workers’ organisations and collective bargaining and no forced labour or child labour • Integrate the specifications that were under the responsibility of the Contractor during the construction phase, into new and existing operational MHPL specifications for the operation phase, including but not limited to, the following topics: <ul style="list-style-type: none"> • Internal procedures for the regular maintenance of the Project including tree and vegetation removal in accordance with the measures set out in this ESMMP. • Internal procedures to ensure that any contractor and service provider during operations will have human resource policies following national, Lenders and ILO requirements and reporting arrangements to ensure compliance.
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<p>[OO- 2] Compliance Execution Plan:</p>	<ul style="list-style-type: none"> • Prepare a Compliance Execution Plan for the operation period. It will detail: (i) the conditions required by the Environmental Authorities through the Environmental Permit obligations, (ii) the E&S Management actions committed through the present ESMMP, including the necessary coordination with the Governmental Agencies in charge of third party management actions, (iii) the Lenders covenants attached to the financing agreements, and (iv) the relevant E&S national regulation framework and possible changes. • Conflicts between the national and international plan requirements will be identified and a process for addressing both sets of requirements identified. • The Compliance Execution Plan will indicate (i) the persons within MHPL who owns the compliance requirement, (ii) the methods to be used to comply with the requirement and where appropriate, performance standards and criteria to be satisfied, and (iii) whether the associated activities will be executed by the company's own employees, or by others acting on its behalf. The Compliance Execution Plan will then be further scheduled in annual Work Plans.
<p>[OO- 3] Occupational health & safety:</p>	<ul style="list-style-type: none"> • Develop a Health and Safety Plan aligned with ISO45001 addressing the health and safety hazards at the site and which are expected to encompass the same type of hazards as those addressed in construction. • Include in the Health and Safety Plan: <ul style="list-style-type: none"> ▪ Management measures for chemicals and hazardous materials, including inventories of materials. ▪ Specific measures related to working close to high voltage electricity apparatus, for working at height on towers and noise exposure. ▪ Security measures to control the access to the operators' village and sensitive project's infrastructures / storage ▪ Undertake regular health and safety risk assessments, monitor the implementation of the Health and Safety Plan and provide health and safety trainings to its employees during operation.

5.1.3.2 ESMS 2.- System Implementation

<p>[OO- 4] Transition between construction to operation</p>	<ul style="list-style-type: none"> • Prior to commissioning, identify MHPL personnel employed during the construction period, with potential to take on operating responsibilities. • Provide specific training to MHPL personnel with regard to specific skills required for operation of the Projects. • Prior to commissioning, revise, update and disclose the MHPL ESMMP for the operation phase.
<p>[OO- 5] Annual Work Plan and resource scheduling</p>	<ul style="list-style-type: none"> • As for the Construction period, every December, prepare annual Work Plan for the execution of the ESMMP Management Actions by MHPL for the coming year and allocate responsibilities and effort within the Environmental and Social team for each activity, including sub-consultants. • Define the staff in the Environmental and Social Team to meet the operational obligations set out in this Section 5. Define job description and describe accountability. Allocate equipment and logistics support as required by the functions. • Undertake regular health and safety risk assessments, monitor the implementation of the Health and Safety Plan and provide health and safety trainings to MHPL employees during operation.
<p>[OO- 6] Progress Activity Reporting and Communication:</p>	<ul style="list-style-type: none"> • As defined throughout this ESMMP, prepare the progress activity reports on environmental and social performance: <ul style="list-style-type: none"> ▪ Project Incident Notification to lenders: if and when required ▪ Six-monthly Environmental & Social Report to lenders during the first three years and then on an annual basis ▪ Six-monthly Environmental & Social Performance report to public during the first three years and then on an annual basis, posted on the Project's web site ▪ Six-monthly newsletter for local communities during the first three years and then on an annual basis.



<p>[OO- 7] Operations pollution prevention and control plan</p>	<ul style="list-style-type: none"> • Development and implementation of an operations pollution prevention and control plan to ensure compliance with national emission regulations and international good practice emissions standards, such as the IFC General EHS Guidelines. • All tanks containing hazardous substances (such as diesel) equipped with secondary containment (bunding) with a volume equal to 110% of the tank volume. • Tanks equipped with level detectors and safety systems to prevent overfilling. • Secondary containment bunds maintained empty of rainwater. • Storage areas for hazardous substances protected from adverse weather conditions, have impervious hard surfaces as a base and equipped with secondary containment bunds to collect any spills or leaks. • All handling or transferring of hazardous substances performed on impervious surfaces equipped with spill retention and located at a minimum distance of 50 m from watercourses or 100 m from floodplain margins of the Shire River. • Equipment and materials for clean-up of accidental spills available on site. Polluted soils are removed and managed as hazardous waste. • Runoff from areas where hazardous materials are stored or handled is collected and routed to an oil-water separator for separation of hydrocarbons before discharge to the natural environment. • No fuel or chemical storage shall be located within 50 m of watercourses or within 100 m of floodplain margins of the Shire River.
<p>[OO- 8] Waste Management</p>	<ul style="list-style-type: none"> • A procedure to manage and dispose of floating wastes that accumulates in the main reservoir will be developed and implemented • Waste produced during the project's operation activities will be segregated, stored and disposed of according to GIIP and national regulation, and a register of waste will be maintained • All the necessary arrangements for transport of waste that is not managed on-site (i.e. construction phase landfill) to accredited offsite waste management facilities will be made, and a waste tracking system (waste manifests) will be developed and implemented • Performance of the waste management undertaken during construction will be monitored.



5.2 Management of Change Procedure

5.2.1 Objective, Timeframe, Responsibilities, Performance Criteria

The 2024 ESIA have been prepared based on the 2024 Basic Design information.

As is typical for such a large hydropower project, further design development or refinement is to be undertaken. Many changes in design will be of a purely technical nature with little environmental or social relevance. Other changes in design are expected to fall within the areas and issues already covered by the 2024 ESIA Study (e.g. S137 road upgrade alignment on the Neno side).

Potential changes can be triggered at various stages of the Project implementation (e.g. Detailed Design, Construction, Operation) and by various stakeholders (MHPL, Designers, Lenders, Community). The Management of Change Procedure (MCP) recognises that there could be differing degrees of change and the need and scope of environmental and social investigation would need to be appropriate for the proposed change. Consequently, three categories of change have been developed, which comprise:

- Category 1 – A Project design or activity change that does not result in any changes to or impacts on communities or the natural environment as a result of the design change. Any potential impacts would be routinely controlled through the existing measures outlined in the ESMMP. Subject to technical evaluation, the change can be accepted without the need for further environmental and social study;
- Category 2 – A Project design or activity change that could lead to environmental and/or social changes but which are unlikely to result in significant impacts. Such impacts may or may not have been covered by the ESIA and mitigation measures outlined in the ESMMP. These design changes would not be in sensitive locations (i.e. Protected Site or within proximity of settlements (within 150m)) and are unlikely to result in potential non-compliance with the Lenders E&S policies. However, an environmental and social study would be required to demonstrate the potential impacts of the change and to confirm that measures are either already in place in the ESMMP, can be controlled by good industry practices or measures can be extended or introduced to fully control and/or mitigate the potential impacts. MHPL would undertake a review and approve the scope and outcome of these Category 2 E&S studies prior to any design changes being implemented;
- Category 3 – A Project design or activity change that could result in potentially significant impact that was not included in the 2024 ESIA and is not covered by this ESMMP. Therefore, a change to the Contractors ESMMP would be needed. A Category 3 change would also apply to any changes outside the ESIA buffer within: Protected Sites or within proximity of settlements (within 150m). Category 3 changes will require approval of both the scope and outcome of E&S studies from both MHPL and the Lenders. These E&S studies will need to demonstrate compliance with Lenders Policy requirements, local legislation and good international policy. In some circumstances, the assessment may need to be undertaken in consultation with stakeholders and communities and may require full public disclosure prior to approval by the Lenders.

Regardless of the trigger source, potential changes in design will be formally processed through the Management of Change Procedure. In this regard, the MCP objective will be:

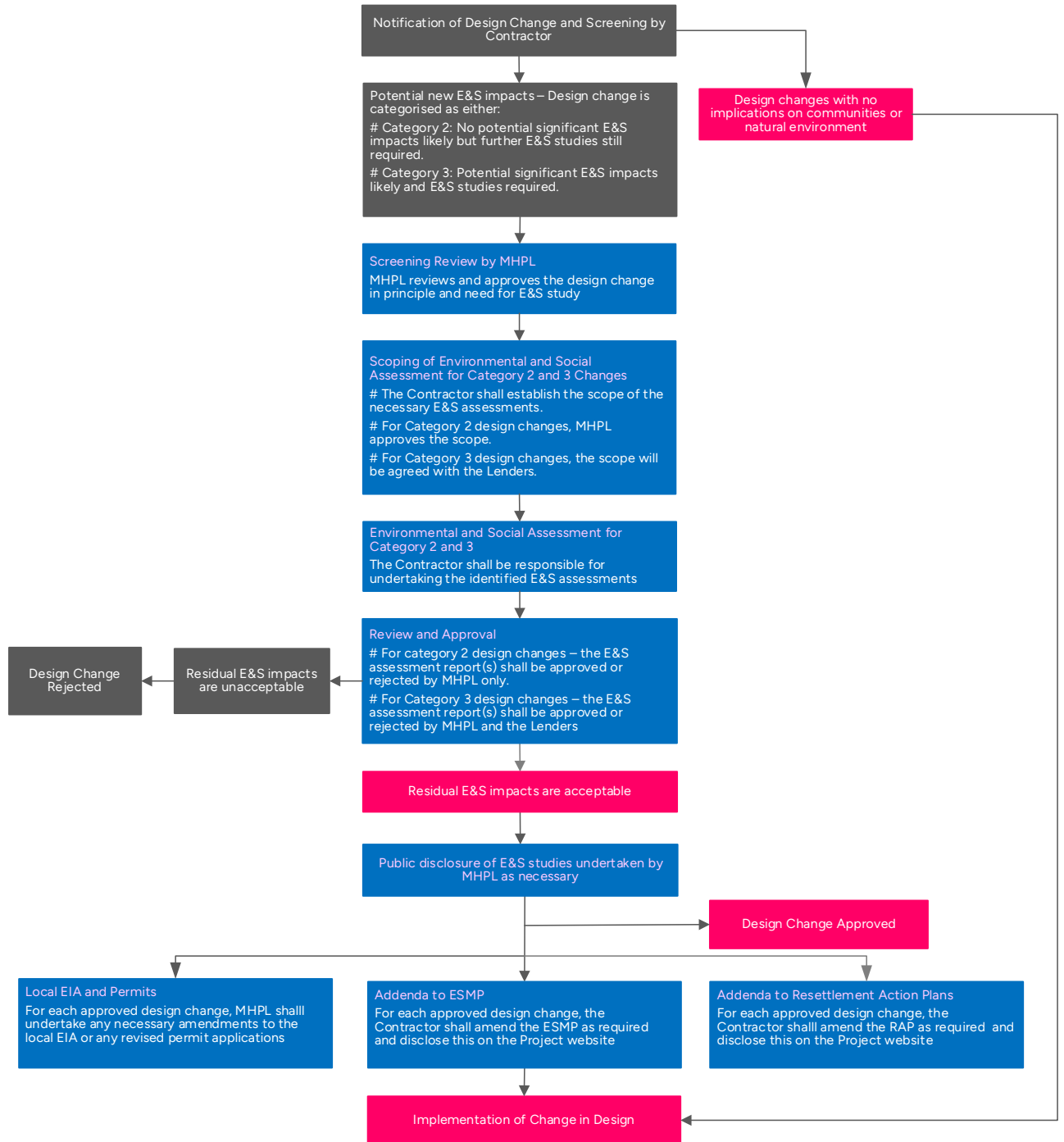
- Changes in design or operating procedures which occur during construction or operation are systematically screened to detect any environmental or social implications that were not addressed in the 2024 ESIA and that would require additional mitigation strategy and public disclosure, as required.

5.2.2 Step-by-Step Procedure

The general MCP procedure is described in the following eight steps and in overview in Figure 5-1.



Figure 5-1: Management of Change Procedure





5.2.2.1 Step 1 - Notification of Design Change and Screening by EPC Contractors

The Contractor will notify MHPL of the need to change the design or clarify the details of infrastructure being developed outside of the 2004 ESIA study area. In so doing, the EPC contractor will present details of the proposed change, the justification for the change, any alternatives considered and indicate their preliminary evaluation of the E&S category of the change.

5.2.2.2 Step 2 – Screening Review by MHPL

MHPL shall then examine the proposed change notified by the EPC Contractor (e.g. drawings, technical notes) to review whether adequate information has been provided to categorise the proposed change. If MHPL agrees to the change being a Category 1 change, it will inform the contractor and no further work is necessary. For all Category 2 and 3 changes, MHPL will inform the contractor of the need to provide a scope of works in line with Step 3.

In addition, for each Category 2 and 3 design change, MHPL will establish whether the Contractor has evaluated a sufficient number of alternative designs and selected the most appropriate option taking into account inter alia environmental and social impacts.

5.2.2.3 Step 3 - Scoping of Environmental and Social Studies for Category 2 and 3 Changes

The Contractor shall establish (i) the scope and level of detail of the necessary Environmental and Social Study; (ii) the scope of any necessary site surveys; and (iii) the technical studies, assessments and reporting formats needed. The proposed scope of the E&S study will be based on the methods used in the 2024 ESIA, where applicable. MHPL shall coordinate with the Contractor to ensure that these needs are addressed. MHPL would approve the scope of an E&S study for a Category 2 change.

For Category 3 changes, MHPL shall report to the Lenders to inform the proposed change, the result of the E&S screening, and to gain approval for the proposed scope of the E&S study. The E&S study proposed by the contractor must comply with the Lenders E&S policies. The Lenders must approve the scope of all Category 3 E&S studies. At this scoping stage for Category 3 changes, the need for stakeholder engagement and public disclosure of the final E&S study is also to be determined and approved by the Lenders.

5.2.2.4 Step 4 - Environmental and Social Studies for Category 2 and 3

The EPC Contractor undertakes the identified and approved E&S study.

For Category 3 changes, the contractor undertakes the agreed stakeholder consultation. MHPL monitors the stakeholder consultation process and the E&S study.

Where public disclosure of the E&S study is needed, MHPL shall support the Contractor with any public disclosure requirements of any E&S studies by organising any public meetings and posting details of the disclosure on its Project website. Public disclosure only occurs after Step 5 which is the review and approval of the E&S study.

5.2.2.5 Step 5 - Review and Approval

For Category 2 design changes the E&S study report(s) shall then be submitted for the approval or rejection of MHPL only. For a Category 3 design change, the E&S study report(s) shall be submitted by MHPL to the Lenders for approval or rejection of the design change. The review and approval of Category 3 changes must demonstrate compliance with the Lenders E&S policies, local legislation and good international practice.

MHPL shall inform the Contractor of the outcome of the review of the design changes and the results of any E&S study reviews. Changes and updates will be made to the ESMMP as required for both Category 2 and 3 changes – see Step 7.



5.2.2.6 Step 6 - MEPA ESIA and Permits

MHPL shall, for all approved design changes, carry out a review of existing permits to determine whether these could be affected and whether revisions to the MEPA ESIA are required. MHPL shall then be responsible for notifying the relevant authorities of all material design changes where these could affect the terms of permits already issued, and the preparation of any revised permit applications or revisions to MEPA ESIA, if required. The Contractor will then be responsible for implementing and complying with the requirements of the local permits.

5.2.2.7 Step 7 -Addenda to ESMMP

If an approved design change requires environmental and social measures which are not covered by the present ESMMP, the Contractor shall prepare an addendum to the Contractors C-ESMMP and specific management plans to address any new specific mitigation measures. The addenda shall be submitted to the Lenders and disclosed on the Project website.

5.2.2.8 Step 8 - Addenda to Resettlement Action Plans

For each approved design change, if required, MHPL will conduct the land surveys required and the necessary consultations to update the Resettlement and Livelihood Restoration Action Plan (RLRAP) for the area affected by the proposed change in design. The Contractor shall use the result of the RLRAP investigations to minimise impacts on livelihoods.

MHPL will submit the addenda to the RLRAP to the Lenders before payment of compensation and actual land take. The RLRAP shall be disclosed on the Project website and compensations paid in order that the land take can be formalized.



5.3 Detailed Design and Environmental and Social Surveillance of Construction Works

5.3.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> Section 4 describes the ESHS actions under the responsibilities of the EPC Contractors. These measures are complex and will require detailed planning and supervision to ensure timely and qualitatively execution. In addition, the 2024 ESIA process recommended that the detailed design undertakes additional technical studies and refine the basic design to minimize potential E&S risks. Adaption of basic design and environmental supervision of construction works require specific resources and activities. The objective of this sub-plan is: Construction methods do not incur adverse or non-compensated effects on communities, vegetation, soils, groundwater, biodiversity, natural drainage and water quality in areas adjacent to Worksites for the entire duration of the works.
Component	<p>Two components form the present plan:</p> <ul style="list-style-type: none"> SURV.1- Review of detailed design in line with E&S considerations SURV.2- Environmental supervision of construction methods
Timeframe	<p>The two components will be implemented during the detailed design stage and the main construction period until the taking over of the works by MHPL</p>
Responsibility	<p>MHPL as the Employer, with delegation to the Owners Engineer as the Employer’s Representative in charge of works supervision.</p>
Performance Criteria	<p>SURV.1:</p> <ul style="list-style-type: none"> C-ESMMP plans timely submitted according to contractual provisions and evidence of MHPL approval. Availability of design refinement studies as required by this sub-plan, and effective incorporation into final design. <p>SURV.2</p> <ul style="list-style-type: none"> Damages to private property because of construction methods avoided, or fully compensated. Areas adjacent to worksites effectively protected and not affected by works. Land-take drawings, method statements, pre-construction surveys, environmental permits if required and/or agreement with affected stakeholders, for infrastructures not covered by the 2024 ESIA. Local recruitment policies and offices opened as per EPC Contract specifications. Minutes of public information meetings on traffic management and construction methods. Attendance sheets. Weekly Environmental Inspection Sheets; Up-to-date, fully populated Non-Conformities register Monthly report of monitoring activities (water quality, air & noise, local jobs).



5.3.2 Implementation and Monitoring Actions during Construction

5.3.2.1 SURV 1: Review of Detailed Design in Line with E&S Considerations

<p>[OC- 10] Review and approve the C-ESMMP</p>	<ul style="list-style-type: none"> • Confirm mobilisation by EPC Contractors of resources allocated to Health, Safety, Environment and Community management as per contract requirements: management staff, logistics, monitoring equipment. • Require timely submission of C-ESMMP specific planning prior to the start of site construction works, particularly for works that would result in vegetation clearing or works close to the Majete WR. • Check compliance of management plans with the ESHS specifications of the Contract, in terms of structure, content and mapping documents.
<p>[OC- 11] Verify appropriateness of proposed detailed design with intended purpose</p>	<ul style="list-style-type: none"> • Verify that the detailed design proposed by the EPC Contractors does not materially change the assumptions made during the 2024 ESIA studies and associated mitigation strategies, from an environmental and social point of view. • If not, trigger an internal management review.
<p>[OC- 12] Preconstruction Surveys and Initial Environmental Examination</p>	<ul style="list-style-type: none"> • Require, assess and sign-off Preconstruction Surveys and Initial Environmental Examination, for temporary facilities worksites not defined when the 2024 ESIA was issued, prior to the start of the works on site: <ul style="list-style-type: none"> - Spoil Disposal Areas - Borrow Areas - Construction roads (worksites, transmission line corridors) • Verify that all environmental permits and notifications, whether legal permits or compliance with the Lenders policies, are obtained prior to the start of the works on site.
<p>[OC- 13] Assess basic design refinement required to minimize E&S risks</p>	<ul style="list-style-type: none"> • Assess basic design refinement requirements identified in the 2024 ESIA and approve changes that avoid or minimize adverse E&S effects: <ul style="list-style-type: none"> - 400 kV transmission line route to avoid sensitive social (house and graveyard), double resettlement (MOMA and Mpatamanga lines) and biodiversity (rocky outcrops or natural habitat likely to be raptor breeding and foraging habitat spots) elements. - 132 kV transmission line route to avoid sensitive social elements (house and graveyard). - 400kV transmission line and switchyards designed to minimise the corona effect. - S137 road bypass on the Neno side to avoid the physical displacement of households living in Feremu. - S137 road design to be adjusted to maintain a minimal distance of 3 m from the roadside to the buildings, as feasible. This safety distance must be implemented as a minimum between the road and sensitive buildings such as churches, schools and health centres. - S137 road design to be adjusted to avoid the two cemeteries on Blantyre side. - Service road (main dam to regulating dam) routing to minimize physical displacement, influx, dust and noise nuisance. A 200 m buffer between the road and each identified settlement must be implemented. - Worksite layout at the regulating dam to minimize air, noise and poaching impacts on the Majete WR. - Main dam lighting pointed North to reduce direct lights toward sensitive areas, including Majete and minimise sky glow effects. - Regulating dam, main powerhouse and switchyards with limited and non-permanent lighting to reduce light ‘spillage’ if feasible and acceptable from a security standpoint.



	<ul style="list-style-type: none"> - Project’s infrastructures, e.g. main powerhouse and switchyard, regulating dam switchyard to be painted with colours that reflect and blend with the colours of the surrounding landscape – avoid shiny materials or pure blacks and whites
<p>[OC- 14] Design and implement safe accesses to the main reservoir for fishing, livestock watering and livelihood activities</p>	<ul style="list-style-type: none"> • Based on proposed detailed design for the S137 road, resettlement sites, and the dam facilities, existing tracks and layout of the roads opened and used for the construction works near the main reservoir (e.g. access to disposal areas, borrow areas, dam site), identify areas where permanent and safe access (e.g. wharf) to the reservoir could be arranged for future fishing or other livelihood activities, at the following locations <ul style="list-style-type: none"> - 3 accesses on the left bank: Access for (i) Kaliati Group Village communities (including Chaswanthaka), beyond the 500 m exclusive zone, in the lower part of the main reservoir; (ii) Namputu Group Village communities in the middle and upper part of the main reservoir; - 2 accesses on the right bank: Access for (i) Feremu Group Village communities beyond the 500 m exclusive zone, in the lower part of the main reservoir, and (ii) Ngwenyama Group Village communities, in the upper part of the main reservoir. • Design (i) the wharf facilities taking into account the future variations of water level in the reservoirs and the associated drawdown area, (ii) the road accesses, and (iii) community safety risks associated with crocodiles and hippos. • If and as required by the RAP, study and design access ramps or similar safe access for cattle watering immediately downstream of the proposed wharves (considering the risk of local bacteriological contamination of reservoir water quality). • Specify accordingly the EPC Contractor, or selected local contractors as applicable, for implementation prior to reservoir filling.
<p>[OC- 15] Design and implement safe accesses to the regulating reservoir for livestock watering and domestic water</p>	<ul style="list-style-type: none"> • Based on proposed detailed design for the fence installed by MHPL on the Blantyre side, between the main dam and the upper part of the regulating reservoir, as well as existing tracks and layout of the roads opened and used for the construction works near the regulating reservoir, identify areas where permanent and safe access (e.g. ramp) to the regulating reservoir could be arranged for future cattle watering or other livelihood activities. • Design (i) the ramp facilities taking into account the future variations of water level in the regulating reservoir and the associated drawdown area and the existing access. • Specify accordingly the EPC Contractor, or selected local contractors as applicable, for implementation prior to regulating reservoir filling.
<p>[OC- 16] Review S137 road construction schedule to minimize interference with public traffic</p>	<ul style="list-style-type: none"> • Ensure the EPC Contractor schedules the construction of the S137 road (Blantyre side and by-pass of the main reservoir) to minimize interference of public traffic. • Verify that technical solutions are identified during detailed design preparation to minimize the duration traffic interruption along the public roads used by the project. • In case of long-lasting traffic interruption, during that traffic interruption: <ul style="list-style-type: none"> - Inform the affected communities in advance - Arrange for shuttle bus system - Maintain an ambulance in stand-by in Chaswanthaka or Feremu for emergency situations
<p>[OC- 17] Heat Resilience of Operators and Resettlement Villages (Canopy Effect)</p>	<ul style="list-style-type: none"> • Undertake a study to identify the positive impact of tree presence on local air temperature and humidity, especially in the sparsely vegetated Mpatamanga area. • This study will identify suitable types, locations, and planting methods for vegetation around Mpatamanga power plants, operator villages, and resettlement areas. The aim is to establish a sustainable and extensive forested or vegetated area post-construction, with growth anticipated to achieve effectiveness by 2040. • An accompanying monitoring and conservation plan involving local stakeholders is essential to ensure the long-term sustainability of the forested areas. This initiative seeks to create a more favourable working and living environment by



	<p>mitigating heat wave impacts on workers and residents in the affected villages and power plant areas.</p> <ul style="list-style-type: none"> Implementation should occur during the early stages of construction for operator and resettlement villages and throughout the final construction phase for both power plants.
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5.3.2.2 SURV 2: Environmental Supervision of Construction Methods

[OC- 18] Site inspection and environmental coordination meetings	<ul style="list-style-type: none"> Organise weekly inspection of the different work sites jointly by the E&S Manager of the Contractor Review the weekly report using a standard inspection sheet format submitted by the EPC Contractors. This information sheet will check all the environmental and social specifications imposed on the EPC Contractors item by item, giving an immediate overview, during each inspection, of potential cases of non-conformity (photo illustrations before/after non-conformity). At reasonable intervals or when the EPC Contractor’s performance requires, including their primary supply chain, audit the E&S performance of the EPC Contractor(s). Organise formal monthly environmental co-ordination meetings (i.e. separated from technical activity progress meetings) on site with the Site Management of the EPC Contractor and MHPL. Conduct regular checks on compliance with access restriction to the sites, including quarries and river section in the main work areas.
[OC- 19] Environment Incident Reporting & Investigation management	<ul style="list-style-type: none"> Share the Environment Incident Reporting & Investigation developed as part of the ESMS with Contractor and agree on required coordination and non-conformities management. Record all environmental non-conformity detected by the EPC Contractor staff or MHPL staff in a standard record sheet to be filled in by the observer, including photographs, and submitted to MHPL-E&S Manager for logging. This process will follow the Contract provisions and the provisions of Section XX of the ESMMP and will be adapted to the severity of the situation (see Environmental Incident Reporting and Corrective Action Plan, which will describe the management of non-conformities and how these are resolved and closed, in Section XX). If the solution proposed by the EPC Contractor is acceptable, non-conformities will be closed after checking that the measure has been effectively and successfully implemented on site.
[OC- 20] Environmental monitoring carried out by the Contractor	<ul style="list-style-type: none"> Collect monthly results of the environmental and social monitoring carried out by the EPC Contractors for effluent quality, air quality, noise, using the software solution common to all monitoring activities, whether from MHPL or the Contractor
[OC- 21] Stakeholder Engagement Measures	<ul style="list-style-type: none"> Ensure the provisions of the Stakeholder Engagement Plan, which are under the responsibility of the Contractor (e.g. local employment objectives, traffic management, blasting protocols, communication with Majete WR), , are timely and relevantly carried out (gender inclusive, culturally appropriate and aligned with objectives)
[OC- 22] Mobilize a Biodiversity Expert	<ul style="list-style-type: none"> Appoint a suitably qualified Biodiversity Expert at the start of construction activities to: (i) train the relevant Contractor’s personnel on biodiversity risks and areas to avoid; and (ii) to monitor works. The biodiversity expert will liaise with Majete WR management staff to: <ul style="list-style-type: none"> Inform on specific construction methods, work stage or specific activities, nuisances; Verify that the biodiversity ESHS requirements imposed on the EPC contractors are effectively implemented and efficient; Coordinate aspects of wildlife management (including possible rescue) in the project area, specifically relating to regulating reservoir and fencing (wildlife stranding or entrapment); and Discuss and solve any unforeseen effects on the park resulting from the construction activities.



[OC- 23] Light pollution strategy	<ul style="list-style-type: none"> • Review the lighting strategy developed by the EPC that will be implemented at each construction worksites and accommodation camp. • If feasible and acceptable from a security standpoint, do not light the regulating dam, the main powerhouse and switchyards. If unfeasible, use a limited lighting according to measures provided into the lighting strategy. • Continue the lighting strategy developed and implemented by the EPC for the project's infrastructure, and adjust where necessary to reduce direct light towards the Majete WR, and to minimise the skyglow effect and direct lighting. • Discuss with the lodge owners to agree a solution if light pollution caused by the Project's construction activities is observed from the Mkulumadzi Lodge.
[OC- 24] Mobilize an Archaeological Contractor	<ul style="list-style-type: none"> • Appoint an Archaeological Contractor at the start of the construction activities to: (i) Train the relevant Contractor's Personnel on the Chance Finds Procedure; (ii) Intervene when chance finds are discovered; (iii) Apply and report the Chance Finds Procedure; (iv) Provide a watching brief whenever top soil is removed in locations suspected to find cultural heritage features; and (v) undertake investigations of cultural heritage sites as required that cannot be avoided by the works.
[OC- 25] Organise quarterly external labour audits	<ul style="list-style-type: none"> • Organise quarterly external labour audits of the contractors to ensure compliance with labour requirements set out in the ESMMP, the Malawi Labour Code and World Bank/IFC ESS2/PS2.
[OC- 26] Site Rehabilitation Planning and execution	<ul style="list-style-type: none"> • Review the Contractor Site Rehabilitation Management Plan to ensure consistency with ESMMP requirements.



5.4 Resettlement, Land Acquisition and Livelihood Restoration

The construction and operation of the Project will require resettlement, land acquisition and restriction of land use. These resettlement, land acquisition and restriction of use could induce adverse impacts for the affected households. A Resettlement Policy Framework is the Safeguard document assessing involuntary resettlement impacts as per the World Bank and IFC policies. It has been prepared as part of the 2024 Environmental and Social Studies needed for the Lenders appraisal of the Mpatamanga HPP.

The RPF sets out a framework by which the impacts will be mitigated and how compensation will be made. Responsibilities for the preparation and implementation of the phased RAP are distributed between the GoM and MHPL.

This section summarises MHPL management actions relating to the RAP process. The GoM RAP management actions are presented in Section 6.2.

5.4.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> • The Project construction and operation require the acquisition of lands and the establishment of restriction on land use or restriction of access to natural resources. The local communities are using these lands and natural resources for their subsistence. The land acquisition process will trigger involuntary resettlement (economic and physical displacement). • When preparing the 2024 supplementary E&S studies, the totality of the Project land requirements was not defined. Hence, it was not possible to start the land acquisition process. As the Mpatamanga HPP is a large and complex project, it was decided to phase the land acquisition, compensation and resettlement process. Several separated Resettlement Action Plans (RAP) will be prepared, as follows: <ul style="list-style-type: none"> ▪ Phase 1: Early Works RAP for the S137 access road refurbishment work in Blantyre District. It will also include the acquisition of the Chaswanthaka resettlement site. ▪ Phase 2: Main works RAP: Area covering all project main facilities, as well as construction facilities, and the regulating reservoir area. Any area located in the main reservoir but to be used for construction facilities will also be acquired at that time (upstream coffer dam and diversion tunnel works). The Main Works RAP will also include the new sections of the S137 road in Neno district and the Kambalame Resettlement site. ▪ Phase 3: transmission lines (RoW 400kV TL and 132kV TL), and ▪ Phase 4: Main Reservoir. • The objectives of the RAP process are: <ul style="list-style-type: none"> ▪ Avoid, and when it is not possible to avoid, minimize and mitigate impacts of involuntary resettlement on affected persons resulting from the implementation of the project; ▪ Provide full and accurate information about the project, and afford PAPs meaningful opportunities for participation in design, implementation and monitoring, with particular attention paid to the requirements of vulnerable households and women; ▪ Ensure that people who are adversely affected are fully compensated and successfully resettled; the livelihoods of economically displaced people are re-established, and that their standard of living is, wherever possible, improved; ▪ Prevent the impoverishment of affected persons as a consequence of compulsory land acquisition or loss of livelihood due to project activities; ▪ Make certain that all affected persons are informed of the resettlement process and are aware of the grievance resolution system available through the project, and ▪ Provide, when needed, additional assistance for vulnerable groups.
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	<ul style="list-style-type: none"> The measures to achieve these objectives are defined in the 2024 RPF. These measures will be implemented during the preparation and the implementation of the four phased RAP. They are summarised in this sub-plan of the ESMMP for the reader's convenience.
Component	<ul style="list-style-type: none"> Phased RAP Livelihood Restoration Monitoring and Evaluation
Timeframe	<ul style="list-style-type: none"> The RAP process will start with the preparation of the first phased RAP for the Early Works ahead of the start of the construction activities for the Early Works. The implementation of the last of the four phased RAP will extend about 2 years after the start of commercial operation.
Project Activity	<ul style="list-style-type: none"> Land acquisition, compensation and resettlement
Responsibility	<ul style="list-style-type: none"> The land acquisition and compensation process is managed jointly by MHPL and the GoM All compensation (in cash or in-kind) will be paid by the GoM, using funds from the World Bank. The GoM will fund the resettlement assets (land titling plan, levelling, access roads, lighting, water supply, replacement houses), as this development is necessary for the provision of in-kind compensation (i.e. replacement land and replacement housing). The GoM intends to delegate to MHPL acting as Owner's Engineer the management of the construction of the resettlement sites, the replacement housing and the public infrastructures affected by the Project. This includes: planning, designing, procurement of construction contractor(s), and supervision of the construction works. The livelihood restoration program and monitoring will be funded and implemented by MHPL
Performance Criteria	<p>Phased RAPs preparation and implementation:</p> <ul style="list-style-type: none"> The four phased RAP are prepared, approved and disclosed. A cut-off date is disclosed and enforced for each phased RAP, and the land take areas are demarcated. Relevant measures from the ESMMP sub-plans are included as appropriate in the phase RAP. Resettlement Working Groups and Group Village Grievances Redress Committees are established (minutes of meetings, attendance lists, grievances database) Affected persons are consulted throughout the process (minutes of meetings, attendance lists) Compensation schedules are approved, disclosed to PAP, and compensation agreements signed with affected persons Compensation (in cash or in-kind) and resettlement assistance measures are provided to affected persons and all compensation is paid before construction activities start in a given area. The process is documented <p>Livelihood Restoration</p> <ul style="list-style-type: none"> NGOs and services providers to implement the livelihood Restoration measures are identify and contracted before payment of compensation for each phased RAP Individual and collective (village-level) livelihood Restoration measures are implemented and documented Livelihood restoration measures for vulnerable households are implemented and documented. <p>Monitoring and Evaluation</p> <ul style="list-style-type: none"> Internal quarterly monitoring reports are available Internal close-out report for each of the four Phased RAP are available A witness NGO is recruited, and six-monthly independent monitoring reports are available An independent auditor is recruited, and Independent Completion Audit reports are available



5.4.2 Implementation and Monitoring Actions during Construction

5.4.2.1 Phased RAPs preparation and implementation

<p>[OC- 27] Prepare the four phased RAPs</p>	<ul style="list-style-type: none"> • Together with the GoM PIU, harmonise each phased RAP with the provisions of the sub-plans of this ESMMP, as and when appropriate (Detailed Design, Influx, Community Health, Community Safety, Gender-based Violence and Harassment, Biodiversity, Local Area Development Plan, Reservoir Zoning and Fisheries, Stakeholder Engagement, Cultural Heritage). As necessary, revised the delineation of the land requirements (including land take areas and/or the safety buffer areas⁴ around construction activities) before starting the preparation of each phased RAP. <ul style="list-style-type: none"> ▪ If feasible, relocate all buildings to be permanently resettled because they are within the 400 kV wayleave at a minimum distance of 200m from the towers. ▪ Review the land take area for the main Works and main reservoir, to consider erosion prone locations, the Q 1,000 N-1 return flood modelled at the tail of the main reservoir, and any additional restriction of use or access around the reservoir because of regulatory requirements, biodiversity, waste management, water quality measures or other measures. • Together with the GoM PIU, prepare the four phased RAP for each Project Component based on: <ul style="list-style-type: none"> ▪ Obtained land take drawings from MHPL technical team or EPC Contractors, including optimised land requirements in order to minimise involuntary resettlement impacts, ▪ Entitlement matrix and compensation framework defined in the 2024 RPF, • Together with the GoM PIU, establish and disclose a cut-off date for each phased RAP, • Together with the GoM PIU, at the cut-off date time, demarcate the land take areas to identify the lands to be acquired, or where restriction of access or use will apply.
<p>[OC- 28] Obtain Approvals</p>	<ul style="list-style-type: none"> • Together with the GoM PIU, submit the Phased RAPs to the Lenders for approval. • Together with the GoM PIU, submit the Compensation Schedule for each phased RAP to the Ministry of Lands for Approval.
<p>[OC- 29] Mobilise resources for the RAP processes</p>	<ul style="list-style-type: none"> • Mobilise resources in MHPL E&S Management Unit: <ul style="list-style-type: none"> ▪ Social Lead ▪ Resettlement Infrastructure Team (Responsible for the design and planning of resettlement sites, including housing, roads, water supply, electricity) ▪ Livelihood and Social Development Team (responsible for Livelihood Restoration programmes) ▪ Consultation and Stakeholder Management Team (Responsible for the public disclosure of information about the RAPs, of the consultation and engagement with affected persons and the management of grievances) ▪ Project Lands Team (Manages the database of affected persons and assets and of the compensation program)
<p>[OC- 30] Consultation with affected communities and persons</p>	<ul style="list-style-type: none"> • Together with the GoM PIU, establish District-level and Group-Village level Resettlement Working Groups (RWG) <ul style="list-style-type: none"> ▪ Disclose the RAP approach, objectives, principles and measures to the RWG ▪ Consult with the RWG as appropriate ▪ Mobilise the RWG as appropriate to facilitate the preparation of the phased RAPs (establishment of cut-off dates, identification of land owners, resolution of grievances as appropriate) • Together with the GoM PIU, consult the affected persons throughout the RAP preparation:

⁴ The safety buffer areas are defined in the 2024 ESIA as 500m buffer around the quarries, 200m around the service roads, and between the main dam and the main powerhouse outlet.



	<ul style="list-style-type: none"> ▪ Inform the affected communities in advance of the start of the Phased RAP process preparation through Community Sensitisation Meetings ▪ During the data collection, engage the affected persons and community in a gender-inclusive manner, and include engagement with vulnerable groups as appropriate. ▪ Disclose the draft and final Phased RAPs and the compensation packages to the affected communities and affected persons ▪ Disclose the compensation schedule to the affected persons ▪ Document the process: agreed compensation package, willingness of affected persons to move, documents signed by the parties. • Together with the GoM PIU, establish Grievance Redress Committees in the Group Villages affected and register, manage and resolve grievances in a documented manner
<p>[OC- 31] Support the payment of compensation and provision of resettlement assistance</p>	<ul style="list-style-type: none"> • Together with the GoM PIU, identify Banks for payment of compensations to affected persons • Together with the GoM PIU, sign compensation agreements with the affected persons, • As delegated by the GoM, act as the GoM Owner’s Engineer for the management of the construction of the resettlement sites, the replacement housing and the public infrastructures affected by the Project. This includes: planning, designing, procurement of construction contractor(s), and supervision of the construction works. • MHPL will support the ceremonies for the sacred Baobab located in the main reservoir in Kambalame Village. A cow (or an equivalent symbol) will be supplied to the villagers to mark a final celebration for the tree and choose a new one. • Document the process as defined in the RPF for monitoring.

5.4.2.2 Livelihood Restoration

<p>[OC- 32] Resources for implementation the Livelihood Restoration Programme</p>	<ul style="list-style-type: none"> • MHPL will identify specialised implementing partners to provide the livelihood restoration measures: <ul style="list-style-type: none"> ▪ NGO or training organisation to train the affected persons on the sustainable management of compensation, ▪ NGO(s) or organisation(s) with logistical capacities to deliver the transitional support in-kind (food basket during 6 months), to provide agricultural inputs, one bicycle per households, ▪ NGO(s) or micro-credit organisation(s) to provide micro-credit schemes and training on business plans to develop off-farm activities, ▪ NGO(s) or organisation(s) with experience in farming activities to organise and deliver Farmers Field Schools, support the development of small agro-processing unit and of micro-businesses producing agricultural inputs, ▪ NGO(s) or organisation(s) with experience in green charcoal production, ▪ NGO(s) or organisation(s) with experience in small-scale irrigation systems, ▪ Specialised Expert to undertake a Reservoir Fisheries Feasibility study and Initial Reservoir Fisheries Management Plan (same resource as for the Reservoir Fisheries in Section 5.14 of this ESMMP), ▪ NGO(s) or organisation(s) with experience with vulnerable households, to provide small livestock (goat or sheep) and support to the development of beekeeping. ▪ Social assistance service provider to offer psychosocial support throughout the resettlement process. • Contract and mobilise the specialised implementing partners identified in a timely manner to provide the livelihood restoration measures at the start of the compensation process for each phased RAP
<p>[OC- 33] Individual Livelihood Restoration</p>	<p>MHPL will, with the assistance of service provider(s) contracted in [OC- 32]:</p> <ul style="list-style-type: none"> • Provide individual support to affected households during the compensation and resettlement process: <ul style="list-style-type: none"> ▪ Support to open a bank account to receive compensation for households who do not have a bank account,



<p>measures for all Phased RAPs</p>	<ul style="list-style-type: none"> ▪ Deliver training and seminars on sustainable management of compensation, ▪ Deliver transitional support n-kind (food-basket per affected household during 6 months) • Implement measures to support existing farming activities of affected households: <ul style="list-style-type: none"> ▪ Provision (in-kind) of Agricultural Inputs to Restore Crops Production, ▪ Provision (in-kind) of one bicycle per affected household. • Implement Measures to support development of alternative off-farm activities: <ul style="list-style-type: none"> ▪ Micro-credit schemes and training on business development, ▪ Preferential hiring on construction activities and skills training. • Pay special attention to vulnerable groups and provide the specific measures defined for them in the Resettlement Action Plans.
<p>[OC- 34] Collective livelihood restoration measures for all phased RAPs</p>	<p>MHPL will, with the assistance of service provider(s) contracted in [OC- 32]:</p> <ul style="list-style-type: none"> • Establish Farmer Field Schools, provide trainings on improved fallow and demonstration plots, • Undertake a training program for farmers in resettlement villages focusing on adopting sustainable practices with local, water-efficient crops suited to a warming climate. • Support to development of small agro-processing units (1 per village), • Support to development of micro-businesses producing agricultural inputs (1 per village).
<p>[OC- 35] Collective livelihood restoration measures for the Main Works and Main Reservoir RAPs</p>	<p>MHPL will, with the assistance of service provider(s) contracted in [OC- 32]:</p> <ul style="list-style-type: none"> • Support to sustainable and green charcoal production <ul style="list-style-type: none"> ▪ Assessment of existing woodlot management practices in the 6 GVH around the main reservoir and main works ▪ Development of training modules to be administrated in the affected group villages and villages, ▪ Training of local farmers on the best woodlot management techniques from seedling production, plantation, and maintenance up to harvesting techniques. ▪ Assessment of tree varieties appropriate for supporting climate resilience in the project area, ▪ Setting up of trial stands for appropriate seeds and setting up of orchards to grow and disseminate improved varieties. ▪ Establish demonstration plots in the 6 GVH to demonstrate woodlot management practices with improved trees species. • Restoration of access to water for domestic and drinking purposes: <ul style="list-style-type: none"> ▪ Inventory of domestic water sources and water needs in each village before the start of construction, ▪ Identification village by village (i) of the dependency on the Shire River for domestic uses (i.e. if other water sources are available and used or not), (ii) of risks of reduced accessibility to the reservoir during operation (based on the results of the 2024 ESIA assessment on the risks of human-animal conflicts (crocodiles and hippos) and (ii) of the need of provision of additional water sources for domestic purposes. The need will be assess considering the national Water Policy (Ministry of Water and Sanitation 2022), ▪ Through a participatory process in each village, identification of preferred option to maintain access to water for domestic purpose. As the villages vary in size and in distance with the reservoir, a range of technical solution may be necessary. They may involve borehole, wells, construction and development of safe access to the river or its tributaries. ▪ Study local water use strategies (rainwater management for irrigation, groundwater access, and drinking water management) and anticipate adaptations to climate change conditions. Design adaptations resilient to climate change for irrigation and drinking water schemes from the Mpatamanga Reservoir to resettlement villages, including flexibility for future upgrades. • Construction of the solutions chosen in each village.



	<ul style="list-style-type: none"> • Restoration of livestock access to water before the start of the main construction through a participatory process: <ul style="list-style-type: none"> ▪ Participatory assessment in each village if the cattle can access the reservoir banks using delineated secured accesses, or if the cattle need to stay away from the reservoir to protect the water quality, ▪ Participatory definition in each village of solutions to be developed (construction of drinking troughs fed by boreholes or wells, or by systems abstracting water from the regulating reservoir) ▪ Construction of solutions chosen in each village. • Support to develop small scale irrigation: <ul style="list-style-type: none"> ▪ Participatory assessment of technically and economically feasible and socially acceptable solutions with the affected communities around the main reservoir and main works, ▪ Feasibility study to validate the solutions to provide small-scale irrigation systems, ▪ Selection of small scale irrigation solutions, ▪ assist the affected persons affected by the loss of livelihoods willing to develop small-scale irrigation activities in obtaining the regulators' authorisation to extract water from the main reservoir, if and as needed. ▪ Establishment of the small-scale irrigation system before the start of commercial operation. • Support to fisheries activities for affected communities, as indicated in RES 3: 'Reservoir Fisheries' in Section 5.14 of this ESMMP. MHPL will work with local authorities to advance the competitive abilities of communities living around the main reservoir with regard to reservoir fisheries, including potential closure to migrants for the first 10 years of fisheries development.
<p>[OC- 36] Livelihood restoration measures for Vulnerable Households</p>	<p>With the assistance of service provider(s) contracted in [OC- 32], MHPL will provide Livelihood Restoration measures for vulnerable households:</p> <ul style="list-style-type: none"> • Assistance to land-clearing and/or preparation of agricultural fields • Provision of Small Livestock (Goat or sheep) per affected vulnerable household, • Support to Develop Beekeeping: <ul style="list-style-type: none"> ▪ Provide beekeeping training to affected vulnerable households, including on health and safety principles, and on how to treat bee stings, ▪ Provide a start-up package of beekeeping materials (2 wooden beehives, 3000 bees and one queen bee per beehive, Personal Protective Equipment (PPE) per beneficiary, Honey extractor, 20 Glass bottles (1 litre) as containers for storage), ▪ Oversee the installation of beehives in suitable areas by vulnerable households, ▪ Support the vulnerable households with their first honey harvest and conduct training on marketing and selling the products, ▪ Identify markets to sell honey, and link the buyers with the beekeepers • In addition, MMHPL will provide, through a specialised service provider, psychosocial support throughout the resettlement process to households who wish to receive such support. This support will be free and anonymous for all affected persons and the project will pay for all costs

5.4.2.3 Monitoring

<p>[OC- 37] Internal RAP monitoring and evaluation</p>	<ul style="list-style-type: none"> • Monitor internally the implementation of the RAPs. <ul style="list-style-type: none"> ▪ Record details of all affected persons, their compensation entitlements and the status of payment in the Project database and update at least monthly, as defined in the RPF ▪ Develop an Indicator Matrix for monitoring and evaluation purposes. ▪ Prepare quarterly RAP implementation monitoring reports, to Mpatamanga Project Management (MHPL and PIU) and Lenders, until the internal close-out report • Prepare one internal close-out report for each of the four Phased RAP, at least two years after payment of compensation, and no longer than 3 years after displacement of affected persons.
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	<ul style="list-style-type: none"> • Issue each internal close-out report to Mpatamanga Project management (MHPL and GoM PIU) and Lenders.
<p>[OC- 38] External RAP monitoring</p>	<ul style="list-style-type: none"> • Appoint a witness NGO to prepare six-monthly independent monitoring reports during the implementation of the phased RAP, until the internal close-out report. • Issue each independent monitoring report to Mpatamanga Project management (MHPL and GoM PIU) and Lenders.
<p>[OC- 39] Independent RAP completion audit</p>	<ul style="list-style-type: none"> • Appoint an independent auditor to undertake external completion audits for each phased RAP. • For each phased RAP, the independent auditor will prepare an Independent Completion Audit report as defined in the RPF after the internal Close-out report (at least two years after payment of compensation, and no longer than 3 years after displacement of affected persons) • Issue the Independent completion audit reports to Mpatamanga Project management (MHPL and GoM PIU) and Lenders.



5.5 Environmental Flow

5.5.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> Environmental Flows (EFlows), in the context of this project, refer to the quantity, frequency, timing, and quality of water and sediment flows downstream of the Project components (Main Reservoir, Main Reservoir Powerhouse, Regulation Reservoir and Powerhouse) that are designed to minimize impacts on ecological, safety, and social receptors that depend on the affected ecosystems. An EFlows Assessment (Chapter 9) has been conducted for this project and the resulting requirements have been incorporated into the Project design, construction and operation. The spatial scope of this sub-plan covers downstream flows from the Main Reservoir dam to Kapichira Reservoir dam. EFlows beyond this spatial limit are covered in the Downstream Floodplain sub-plan. The objective of this sub-plan is to define: (i) the environmental flows regime for construction and operation, as per the Eflows Assessment (Chapter 9) and the operating procedures to be implemented to respect these regimes, (ii) the associated monitoring and adapted management strategy and (iii) the communication of Eflows and monitoring results to stakeholders.
Component	<p>Three components form the present plan:</p> <ul style="list-style-type: none"> EFLOW 1.- EFlows Regime EFLOW 2.- Monitoring and Adaptive Management Strategy EFLOW 3.- Communication of EFlows Results to Stakeholders
Timeframe	<ul style="list-style-type: none"> Implementation and monitoring of EFlows regimes and ecological and social receptors during construction and operation Adaptive management and communication of results to stakeholders during operation
Responsibility	MHPL
Performance Criteria	<p>EFLOW 1:</p> <ul style="list-style-type: none"> Construction phase EFlows regime respected below each Project component; Operation phase EFlows regime respected below each Project component. <p>EFLOW 2:</p> <ul style="list-style-type: none"> High-frequency monitoring of EFlows downstream of the Main Reservoir dam and the Regulation Reservoir dam automated; EFlows ecological monitoring program implemented; EFlows monitoring results used in the adaptive management strategy to revise EFlows as necessary. <p>EFLOW 3:</p> <ul style="list-style-type: none"> EFlows monitoring results (hydrology, water quality, aquatic biomonitoring as and when available) published monthly on the MHPL website; EFlows ecological monitoring results are integrated in the Annual Eflows Report; The annual EFlows Report is published on the MHPL website each year, released to stakeholders and presented in an annual meeting.

5.5.2 Implementation and Monitoring Actions during Construction

During the construction phase, the river diversions implemented to permit river works will not affect downstream flows, except during the reservoir filling period. River diversions for both the Main Reservoir dam and the Regulation Reservoir dam construction sites will be implemented as soon as river works begin, which is scheduled six months after the beginning of the main construction works.

During reservoir filling, the diversion tunnel will direct 90% of the daily mean flow of the Main Reservoir downstream, regardless of the season. The filling duration will vary with an estimated



duration of 114 days under average flow conditions and is schedule to take place from months 42-46 in the construction schedule. The Impoundment of the Regulation Reservoir dam will be much quicker and will take place at the end of all construction works (at month 54).

Monitoring of river water quality, reservoir water and sediment quality, aquatic biomonitoring, fish, flow variations, and climate are defined as per the Environmental & Social Monitoring sub-plan of the ESMMP. Where appropriate, these monitoring requirements are also resented within this EFMP sub-plan.

5.5.2.1 EFLOWS 1: EFlows Regime

[OC- 40] Downstream flows during reservoir filling	<ul style="list-style-type: none"> • During reservoir filling, 90% of incoming flow will be released downstream
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5.5.2.2 EFLOWS 2: Monitoring and Adaptive Management

[OC- 41] Water level measurements during reservoir filling	<ul style="list-style-type: none"> • Prior to the start of reservoir filling, continuous measurement of water levels will commence (i) in the Main Reservoir and (ii) in the Regulating Reservoir, (iii) in the Shire River and Lisungwe tributary upstream of the Main Reservoir FSL extent at an appropriate location, and (iv) in the Shire River downstream of the Regulating Reservoir at an appropriate location before the Majete WR northern fence.
[OC- 42] River flow monitoring upstream of the Main Reservoir	<ul style="list-style-type: none"> • Prior to the start of construction, river flow monitoring stations will be established and maintained on the Shire River and Lisungwe tributary upstream of the Main Reservoir FSL extent to enable provision of accurate flow estimates during the period of reservoir filling.
[OC- 43] River flow monitoring downstream of the Regulating Reservoir	<ul style="list-style-type: none"> • Prior to the start of construction, a river flow monitoring station will be established and maintained on the Shire River downstream of the Regulating Reservoir to enable provision of accurate flow estimates during the period of reservoir filling.
[OC- 44] Climate monitoring	<ul style="list-style-type: none"> • Prior to the start of reservoir filling, an Mpatamanga climate station will be established and maintained at a suitable location at or near to the Main Reservoir dam such that accurate estimates of direct precipitation and open water evaporation can be made. • Prior to the commissioning, a climate change emergency contingency plan will be implemented. It should integrate operational procedures and equipment to manage operational challenges during floods, drought and heat waves. It will be regularly updated in response to related studies and lessons learnt from recent cyclone observations

5.5.2.3 EFLOWS 3: Communication of EFlows Results to Stakeholders

[OC- 45] On-line disclosure of reservoir filling	<ul style="list-style-type: none"> • On open, publicly available website will be created and maintained to disclose (i) the Main Reservoir inflow and Regulating Reservoir outflow at a minimum 5-minute data interval, (ii) non-conformities against the 90% of incoming flows EFlows commitment, and (iii) water quality monitoring results. • Similarly, public disclosure on the project website will include the results of aquatic biomonitoring for those months during which results are available. • Recorded data is to be QA reviewed and made available on the website on a monthly basis.
[OC- 46] Monthly and Annual Reporting	<ul style="list-style-type: none"> • Monthly and Annual Reporting of the EFlows Results during reservoir filling will be communicated to stakeholders as per the appropriate actions defined in the Reporting and Public Disclosure actions defined in the Environmental & Social Monitoring sub-plan.



5.5.3 Implementation and Monitoring Actions during Operation

5.5.3.1 EFLOW 1: EFlows Regime

A Overall Principles

In most cases, water levels and discharges at the various points (dams, powerhouses) are managed automatically, either via built-in systems (reservoir water level management, minimum flows management) or via daily programs (main powerhouse power production).

A key EFlows assumption is that any variation in sub-daily water level and flow downstream of Kapichira HPP is associated with the operation of Kapichira Reservoir and that any flow alteration (daily and sub-daily) generated downstream of the Regulating Reservoir due to the Mpatamanga HPP operation will only be felt in the reach between the Regulating Reservoir dam wall and Kapichira Reservoir. Any flow variations downstream of the Kapichira Reservoir are attributed to the operation of the Kapichira HPP, not to the Mpatamanga Regulating Reservoir operation.

B Normal Operation

During normal flow conditions (i.e., when daily inflow in Main dam reservoir remains below 550 m³/s), the main power plant will act as a peaking plant, operating only during peak demand period. The following theoretical pattern has been considered for all simulations of operation of main powerhouse: two peaks totalling 9 hours of production (6 am to 12 pm and 5 pm to 8 pm). This theoretical pattern of peak production has been agreed with the national operator, ESCOM. It will of course be adjusted as per ESCOM's requirements and could result in shifts in peak production versus base production. The required production will be sent to MHPL by ESCOM the day before. Despite this potential for variation in production needs, the operational modes and constraints detailed below apply in all operational situations, except floods, where some downstream constraints may not be respected.

C Low Water Level Conditions

The Main Reservoir can ensure power production at the main powerhouse and the Regulating Reservoir dam powerhouse if the water levels are above the minimum operating level (MOL), which is set at 273 mASL at the Main Reservoir and 204.5 mASL at the Regulating Reservoir. If water levels drop below the MOL, the automatic water level management system will stop the units. At the main dam, the spillway gates will be opened to allow release of 90% of mean daily upstream inflow (downstream release constraint), while aiming to restore (as much as possible) the peaking capacity of the main powerhouse. This release includes the minimum flow release from the main dam (2 m³/s).

D Flood Conditions

In flood conditions, the main operating rule to comply with is to avoid releases beyond the natural incoming inflow (principle of not worsening the flood peak).

During flood conditions and once the Main Reservoir reaches FSL, the main power plant is used as a run-of-river plant and delivers a near constant flow of 550 m³/s if the incoming flow at the reservoir does drop below that value. Any additional incoming flow will be released through the flap gates or spillway gates at the main dam (depending on actual reservoir inflow) to remain under FSL (El. 276.00 mASL), except during conditions more extreme than the Design Flood.

The Regulating Reservoir will also act as a run of river scheme in flood conditions, with the reservoir water level remaining as long as necessary at 213.00 mASL (FSL) and releases being performed through the bulb units (generation) and spillway gates (spillage).

Regulation Reservoir dam outflow will be the same as at main scheme outflow, and as the Main Reservoir inflow.



E Main Reservoir

Flow from the Main Reservoir will come from one of two sources: the minimum flow release and/or spill. The reach between the Main Reservoir dam and the main powerhouse (approximately 1 km) will only be influenced by these releases (no other tributaries or sources of flow).

E.1 Minimum Flow

The minimum flow release of 2 m³/s at the main dam will be released by a dedicated penstock fitted with a hollow jet valve designed for this effect (at 249.00 mASL), when the reservoir is between MOL and FSL. In case of unavailability of the hollow jet valve (default or maintenance), the minimum flow will be delivered through one of the flap gates. In case of default, the flow transfer is automatically conducted via the Local Control Unit and an alarm is sent to the operator.

In case of a reservoir level below MOL (very low flow conditions), the minimum flow cannot be released through the hollow jet valve and will be delivered through the spillway gates.

E.2 Spillage

Spillage at the Main Reservoir dam may occur in the case of maintenance or default of flow-delivering structures (hollow jet valve, main powerhouse units), to compensate insufficient flows coming from the main powerhouse units (to respect downstream flow constraints) or when incoming flows to the Main Reservoir present a risk of exceeding the FSL (276.00 mASL). In these cases, water level management will be implemented by the automatic dam regulation through the opening of flap gates and if necessary, spillway gates.

F Regulating Reservoir

The Mpatamanga HPP is designed such that the daily volume released from the Regulating Reservoir should approximate the volume entering the Main Reservoir with the peaking releases from Mpatamanga attenuated by the Regulating Reservoir.

The main objective of the regulating scheme operation is to smoothen the outflows from the scheme, immediately upstream Majete Wildlife Reserve and Kapichira Reservoir, to limit as much as possible flow and water level variations in the river stretch downstream of the Mpatamanga hydropower regulating scheme. This downstream flow release, shown in Figure 5-2, is expressed by the following operating rule:

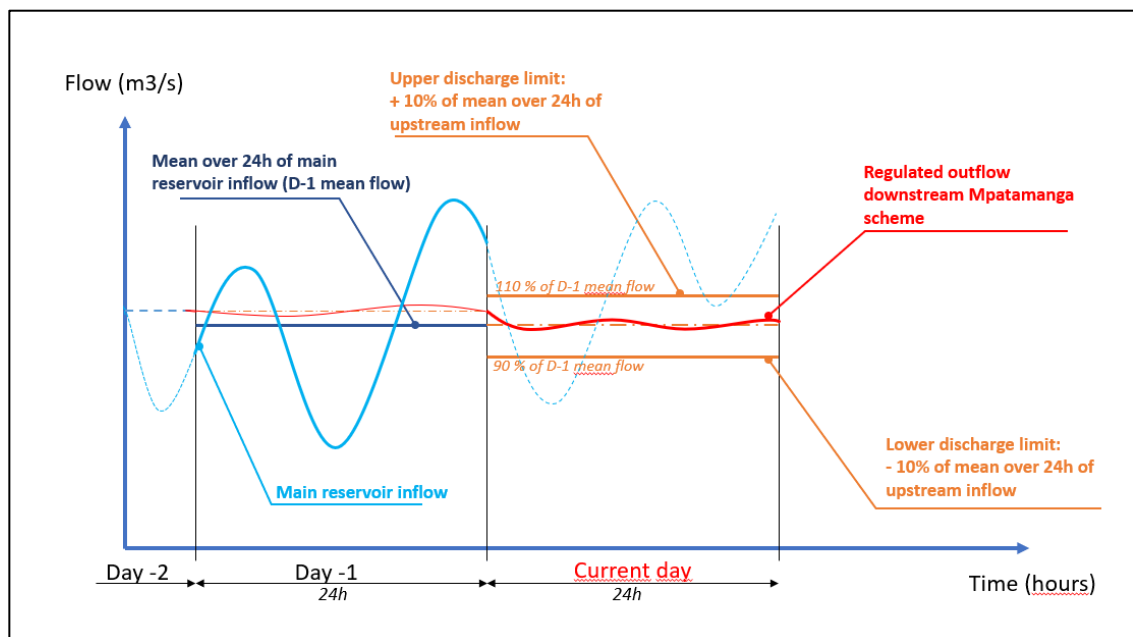
$$\text{Rule 1: } 90\% \times Q_{d-1} \leq \text{Regulating Reservoir flow release } Q_i \leq 110\% \times Q_{d-1}$$

Where:

- Q_i = Current instantaneous discharge of Regulating Reservoir dam, at any time of the day
- Q_{d-1} = Previous day's Main Reservoir mean inflow over 24h.



Figure 5-2: Regulating Reservoir Downstream Flow Release Operating Rule



While remaining in the 90%/110% range, the released flow from Regulation Reservoir may vary during the day, in order to accommodate the actual inflows from the Main Reservoir, and to assure that the Regulation Reservoir water levels will remain, at any time during the considered day, within the operating range between 204.5 mASL and 213 mASL.

MHPL will operate the scheme to reduce these downstream flow variations, which are expected to remain as limited as possible. Remaining at constant downstream flow during the whole day is, to the extent possible, the expected operation pattern. In case flow variations are required (as mentioned above), they will be undertaken respecting a gradient of 1 cm / minute, for increasing or decreasing flows (rate of rise and rate of fall), which corresponds to **Operating Rule 2**.

The agreed limits on intra-daily fluctuations in the releases from the Regulating Reservoir dam powerhouse and spillway were determined to minimize safety and environmental risks (rate of increase / rate of fall, respectively). The technical feasibility of these rates is yet to be demonstrated. It has therefore been anticipated that there could be some unavoidable situations when the ramping rates would need to be higher. In such cases, the absolute maximum ramping rates are 5 cm / minute as a rate of increase and 2 cm / minute for the rate of fall. Each situation leading to deviations from the 1 cm / minute rate of flow change will be documented (cause of the situation and resulting rates of flow changes applied).

Energy production at the Regulating Reservoir dam powerhouse can only be optimized after accounting for Operating Rules 1 and 2.

Given the uncertainty in the technical feasibility of the ramping rates, two years of monitoring of the implementation of these rates will be conducted, coupled with ecological monitoring in the Shire River within Majete Wildlife Reserve. After this two-year period, the number of unavoidable deviations from the required ramping rates will be determined and an analysis of their causes will be undertaken, as well as an analysis of the overall ecological responses to downstream flows. Adaptive management principles will be used to revise the ramping rates as required and as a function of the operational issues identified and monitoring results.

F.1 Primary Regulation

The primary reserve is a grid code requirement of Malawi, which states that at least 3% of the installed power at a hydropower plant must remain available to regulate the electrical grid. This reserve will be activated automatically if it is needed, within the upper limit defined by the hydropower operator and approved by the grid code operator. This activation happens in minutes, and it is therefore an exclusion of the rate of rise and fall described above as Operating Rule 2.



The upper limit of the primary regulation reserve will be capped at 3% at the Regulating Reservoir dam powerhouse.

G Sediment Management

The Sediment Management EFlows requirements are primarily associated with the predicted riverbed incision in the reach between the Regulating Reservoir and the Upper Elephant Marsh, and associated impacts on the lower Shire floodplain (e.g., lowering of groundwater levels in the alluvial aquifer and reduced floodplain inundation). These risks are considered in the Downstream Floodplain sub-plan.

Additional sediment management EFlows requirements are identified with the operation of the Main Reservoir, particularly with respect to sediment deposition near the Tedzani HPP and the Lisungwe M6 road bridge, and with erosion prone locations surrounding the Main Reservoir and the Regulating Reservoir. These requirements are addressed in both this EFlow sub-plan and more generally in the Environmental & Social Monitoring sub-plan.

H Water Quality

The water quality EFlows requirements are related to both construction phase and operation phase general impact producing factors (accidental spills, leaks and runoff at worksites, quarries, borrow areas, spoil disposal areas, waste disposal areas, and at the dam, powerhouse, and sub-stations; and discharge of domestic and sanitary wastewater). These requirements are addressed in the Environmental & Social Monitoring sub-plan.

The risk of total dissolved gas (TDG) supersaturation during Regulation Reservoir dam spillway operation is also considered in the Environmental & Social Monitoring sub-plan. It is however noted to be dependent on the detailed design of the Regulation Reservoir plunge pool and as such is considered to be a specific EFlows commitment presented herein.

I Summary

The Eflows regime operational commitments are summarised in the table below.

[OO- 9] Downstream flows variation	<ul style="list-style-type: none"> Under normal operation, the outflow from the Regulation Reservoir will be within +/- 10% of the previous day inflow to the Main Reservoir.
[OO- 10] Rate of flow variations downstream	<ul style="list-style-type: none"> Under normal operating conditions and with reference to the Shire River within the limits of the Majete Wildlife Reserve, the rate-of-rise and rate-of-fall of water level in the Shire River must not exceed 1 cm/minute, excluding periods of primary regulation. To be reassessed based on monitoring after 2 years. The primary regulation reserve should be kept under +/-3% maximum in less than 3 minutes for the Regulating Reservoir.
[OO- 11] Principle of non-exacerbation of natural flow conditions	<ul style="list-style-type: none"> During periods outside of normal operation and emergency response periods, Main Reservoir and Regulating Reservoir water levels will be managed such that natural variation in the Shire River downstream of the Regulating Reservoir is not exacerbated such that the downstream constraints are respected.
[OO- 12] Main Reservoir Flood Risk	<ul style="list-style-type: none"> A more detailed study will be undertaken to confirm / revise the estimate of critical Lisungwe bed levels that give rise to an unacceptable increase in flood risk in the Lisungwe tributary, with a particular emphasis on the M6 road bridge Detailed hydraulic modelling will be undertaken to quantify the incremental flood risk during extreme flood events (e.g., the Design Flood) to key infrastructure upstream of the main reservoir (e.g., Lisungwe M6 road bridge and Tedzani HPP)
[OO- 13] Main Reservoir Sediment Management	<ul style="list-style-type: none"> Subject to monitoring of predicted sediment deposition rates, after about 20 years of operation, a 30-day sluicing period may be undertaken during the January to February flood season when bed level constraints at the M6 road bridge and water level constraints at the Tedzani HPP outlet are reached. This seasonal drawdown will be preceded by a 30-day drawdown period from 276 mASL to 273 mASL and would be followed by a 30-day refill period (to 276 mASL).



	<ul style="list-style-type: none"> Subject to monitoring of predicted sediment deposition rates, and as required, within 30 years of operation, dredging will be undertaken around the upstream end of the main reservoir near the Tedzani HPP outlet and the M6 road bridge. As applicable, a specific ESIA and Resettlement Action Plan process will be undertaken a year before the planned dredging operation to guide the dredge spoil disposal strategy and its associated impacts on water and soil pollution, land acquisition and ecosystems services.
[OO- 14] Risk of TDG supersaturation	<ul style="list-style-type: none"> To minimise dissolved gas supersaturation in the waters discharged from the spillway, the risk of TDG supersaturation in the plunge pool of the regulation dam will be assessed in more detail during the detailed design stage, and if necessary deflectors will be included in the design of the spillway that can reduce TDG supersaturation.

5.5.3.2 EFLOWS 2: Monitoring and Adaptive Management

A Monitoring

A detailed EFlows monitoring program will be implemented, integrating elements from the hydrological, sediment, water quality, reservoir and ecological monitoring programs, presented in the specific sections of the ESMMP. No additional monitoring requirements have been identified. However, the results from these different monitoring programs will be compiled and analysed in specific EFlows reporting to allow for communication with stakeholders and adaptive management.

The spatial scope of the EFlows monitoring program and reporting is from the upstream extent of the Main Reservoir to Kapichira Reservoir.

The objectives of the EFlows monitoring are to:

- Verify that EFlows management rules are respected and if not, gather sufficient information to understand the context leading to any detected deviations;
- Determine the overall change of river condition in the reach between the Regulating Reservoir dam and Kapichira Reservoir;
- Determine whether there are any changes in baseline water quality or aquatic and riparian biodiversity attributable to the project; and
- Use the information gathered to guide adaptive management.

The monitoring locations are as defined in the Monitoring Actions during Construction and Operation section of the Environmental & Social Monitoring sub-plan. Relevant sub-components are: river water quality; reservoir water & sediment quality; aquatic biomonitoring; flow variations; and climate. The flow variation and climate sub-components, established during the construction phase, are repeated below for clarity.

[OO- 15] Water level measurements during reservoir operation	<ul style="list-style-type: none"> Continuous measurement of water levels, established prior to the start of reservoir filling, will continue to operate and be maintained (i) in the Main Reservoir and (ii) in the Regulating Reservoir, (iii) in the Shire River and Lisungwe tributary upstream of the Main Reservoir FSL extent at an appropriate location, and (iv) in the Shire River downstream of the Regulating Reservoir at an appropriate location before the Majete WR northern fence.
[OO- 16] River flow monitoring upstream of the Main Reservoir	<ul style="list-style-type: none"> The river flow monitoring stations, established prior to the start of reservoir filling, will continue to operate and be maintained on the Shire River and Lisungwe tributary upstream of the Main Reservoir FSL extent to enable provision of validation flow estimates during reservoir operation.
[OO- 17] River flow monitoring downstream of the Regulating Reservoir	<ul style="list-style-type: none"> The river flow monitoring station, established prior to the start of reservoir filling, will continue to operate and be maintained on the Shire River downstream of the Regulating Reservoir to enable provision of accurate flow estimates during the period of reservoir operation.
[OO- 18] Climate monitoring	<ul style="list-style-type: none"> The Mpatamanga climate station, established prior to the start of reservoir filling, will continue to operate and be maintained at a suitable location at or near to the



Main Reservoir dam such that accurate estimates of direct precipitation and open water evaporation can be made.

A specific plan detailing the nature, location, frequency and methods for monitoring to be used for the EFlows reporting will be included in the detailed EFMP to be developed during construction.

In addition to these stations to be managed directly by MHPL, supporting data from Tedzani HPP (powerplant discharges), DWR discharge gauges, water levels at Kapichira Reservoir and downstream of Kapichira Reservoir, amongst others, will be gathered to inform analyses.

B Adaptive Management

A key objective of the Environmental & Social Monitoring sub-plan is that deviations can be identified for the implementation of corrective measures. Changes to EFlows may be required following the analysis of EFlows implementation and monitoring results. If adaptive management is required to adjust EFlows operational rules, this will be identified in the annual report, shared with key stakeholders (MEPA, DWR, Majete WR managers, DNPW, etc) in a dedicated workshop for validation prior to adopting modified rules.

Any changes to the EFlows that affect conditions in the Implementation Agreement or the PPA, will need to be agreed upon with the entities with authority for such decisions. Typically, this will require multi-stakeholder consultation and concertation.

[OO- 19] Adaptive Management - Upstream extent of the Main Reservoir	<ul style="list-style-type: none"> The monitoring of bed levels on the Lisungwe tributary and near Tedzani HPP outlet will be used to confirm or revise the nature and timing of the proposed sluicing / water level drawdown operations. Operational rules for drawdown may be revised according to the efficacy of operation and subject to water intake constraints (e.g., reduce drawdown elevation beyond 273 mASL).
[OO- 20] Adaptive Management – Between the Regulating Reservoir and Kapichira Reservoir	<ul style="list-style-type: none"> The monitoring of water level variation in the Shire River between the Regulating Reservoir dam and Kapichira Reservoir will be subject to a review after a 2-year period of monitoring. After this two-year period, a review of the frequency, magnitude and cause of any deviations from the required ramping rates will be undertaken, as well as an analysis of the overall ecological responses to downstream flows. Adaptive management principles will be used to revise the ramping rates as required and as a function of the operational issues identified and monitoring results.

5.5.3.3 EFLOWS 3: Reporting and Disclosure

A Reporting and Public Disclosure

Reporting and Public Disclosure actions are generally described in the relevant section of the Environmental & Social Monitoring sub-plan. These actions include reporting i) to the public; ii) to Lenders; and iii) to Environmental Authorities. They are comprehensive in nature but do not specify a specific EFlows report. As such, within the EFlows sub-plan, requirements for such a specific Annual EFlows Report are detailed.

The Annual EFlows Reports shall include, but not necessarily be limited to:

- Implementation of EFlows Procedures Analysis, including the documentation of issues or problems related to implementation, if any, and suggested solutions.
- Hydrological Analysis Operational Rules compliance, including a statistical summary of the releases from the main dam and powerhouse and the regulating dam, (percent compliance with the operating rules, annual and seasonal flow duration curves, and duration curves of rates of water flow changes).
- Analysis of any EFlows-related grievances submitted to the GRM (nature, cause, resolution).
- River Condition Analysis, including comparative analysis of baseline and monitoring data, and trend analysis of monitoring data.



- Analysis of the need for adaptive management-related changes to operating rules (if any).

Ad-hoc meetings at the request of stakeholders or MHPL may also be organized to discuss Eflows-related issues.

The implementation of the EFMP will be subject to periodic auditing and review by external auditors, such as the LESA. The need for other audits may be identified by stakeholders during the annual meetings.

<p>[OO- 21] Public disclosure of EFlows operational monitoring</p>	<ul style="list-style-type: none"> • On open, publicly available website will be created and maintained to disclose (i) the Main Reservoir inflow and Regulating Reservoir outflow at a minimum 5-minute data interval, (ii) non-conformities against the rate-of-fall, rate-of-rise, and the +/- 10% maximum outflow variation rules, and (iii) water quality monitoring results. • Similarly, public disclosure on the project website will include the results of aquatic biomonitoring for those months during which results are available. • Recorded data is to be QA reviewed and made available on the website on a monthly basis.
<p>[OO- 22] Annual EFlows Reporting</p>	<ul style="list-style-type: none"> • Annual Reporting of the EFlows Results during reservoir operation will be communicated as a specific “Annual EFlows Report” to stakeholders following the general principles defined in the Reporting and Public Disclosure actions defined in the Environmental & Social Monitoring sub-plan.



5.6 Influx

5.6.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<p>Managing risks associated with project induced in-migration involves a combination of interventions seeking to (i) minimise the in-migration phenomenon, (ii) influence its physical expression within the project’s areas of influence, and (iii) mitigate the most significant potential adverse impacts. That later aspect is addressed in other sub-plans in the ESMMP, including:</p> <ul style="list-style-type: none"> • 5.4 Resettlement, Land Acquisition and Livelihood Restoration • 5.8 Community Health • 5.9 Community Safety and Security • 5.10 Human Rights Due Diligence • 5.11 Gender <p>0</p> <ul style="list-style-type: none"> • Biodiversity • 5.14 Reservoir management • 5.15 Stakeholder Engagement and Grievance Redress Mechanism <p>The objective of this sub-plan is to pro-actively develop the readiness, capacity and resilience of the population residing within the project’s areas of influence so that they cope better with in-migration. Specifically, this sub-plan aims to:</p> <ul style="list-style-type: none"> • Ensure that communities potentially affected by influx, and local authorities and governmental agencies, understand the in-migration phenomenon and its potential adverse effects; • Establish a forum to: <ul style="list-style-type: none"> - discuss culturally appropriate management actions to minimize opportunistic in-migration and community resilience initiatives; - Understand stakeholder capacity and resources to manage these initiatives; - Agree on how the Project can support both planning and implementation of selected initiatives • Implement the agreed strategy and monitors its efficiency and effectiveness.
Components	<ul style="list-style-type: none"> • INF 1 Planning & Monitoring • INF 2 Minimizing Opportunistic In-Migration • INF 3 Community Resilience Strengthening
Timeframe	<ul style="list-style-type: none"> • Construction and first years of operation
Responsibility	<ul style="list-style-type: none"> • MHPL with governmental agencies
Performance Criteria	<p>INF 1:</p> <ul style="list-style-type: none"> • Multi-Stakeholder Forum operational, guidelines and governance procedures established, MSF meetings held every six months • Influx strategy available at start of construction and revised at end of construction, for the operation period. <p>INF 2:</p> <ul style="list-style-type: none"> • Accesses on Neno side not created • Checkpoints available, staffed and operational on time and where planned • No uncontrolled in-migration during construction <p>INF 3:</p> <ul style="list-style-type: none"> • Awareness campaigns effective and documented on potentially affected communities • Existing community organizational structures and current capacity to address challenges effectively reviewed and adjusted where required • Improvement and/or expansion of existing infrastructure and services in relation to influx is effective and documented



5.6.2 Implementation and Monitoring Actions during Construction

5.6.2.1 INF 1: Planning & Monitoring

<p>[OC- 47] Finalize the Influx Management Strategy</p>	<ul style="list-style-type: none"> • Other sub-plans include provisions to either deter opportunistic in-migration or minimize the adverse consequences of influx on communities. As these other sub-plans are developed, overlaps and synergies must be identified to ensure an efficient implementation of the influx management actions. • Review the detailed RAPs, SEP, LADP, Biodiversity Management (on-site and off-site) measures, Community Health Awareness campaign (prepared by MHPL), review the Recruitment Policy and Local Skills Development Programme, as well as the Workers Health and Safety Plan (prepared by the EPC Contractors). Summarize how the in-migration dimension has been included into existing plans. • Select and define existing and new interventions based on guiding principles indicated in the below management actions. Describe the objective of the intervention with respect to project-induced in-migration and its impacts, how the intervention will help achieve the objective, the intended outcomes on in-migration, and the time frame within which these outcomes might be expected. • Consult with local authorities as described below, present the proposed interventions with respect to project-induced in-migration and its impacts, agree on the most appropriate initiatives to best anticipate and minimize project-induced in-migration inflow and potential adverse effects. • Provide the draft strategy to the representatives of local communities for review, receive and consolidate comments and consider them in the revision to this strategy. Disclose locally.
<p>[OC- 48] Establish the Multi-Stakeholder Forum</p>	<ul style="list-style-type: none"> • Consult with District and Traditional Authorities to select the most appropriate vehicle or forum (Multi-Stakeholder Forum (MSF)) to serve as a platform through which to develop a shared vision of influx issues and management and to promote (i) sharing of information; (ii) understanding of the roles and responsibilities of stakeholders; and, (iii) coordination, collaboration and partnership in planning and the design and delivery of development interventions and influx management programs. • Decide if different MSF platforms should be established at District, TA and GVH levels. Consider synergies with, or streamlining requirements for: <ul style="list-style-type: none"> - the stakeholder forums planned by the other sub-plans, including the LADP Participatory Consultation Forum (see Section 5.13), the Community Health Committees with the District Health Management Teams (see Section 5.8), the Resettlement Working Groups (See Section 5.4), the Group Village Grievance Committees (see Section 5.15) and the Downstream Coordination Committees (see Section 5.7); and - the existing local planning institutions like the Village Development Committees (GVH level) and the Area Development Committees (Traditional Authority level). • Define the MSFs objectives and mechanism (rules and procedures, schedule, discussion, topics) with selected District, TA, GVH, DHMT, local NGO representatives.
<p>[OC- 49] Influx Monitoring</p>	<ul style="list-style-type: none"> • Develop the monitoring framework to document anonymously the number of newcomers who migrates into the communities of the TAs of Kunthembwe and Mlauli (close to the construction camps are based) during the construction phase. • Using the official census data at GHV level, as well as the data on population resulting from the surveys and engagement activities conducted with community and households in 2023-24, establish the baseline on population prior to the start of main construction activities. • Work with the district commissioners to define the most appropriate and efficient approach to estimate the number of persons which migrate into their community (e.g. local registration, school attendance).



- Use the annual satellite imagery (see MON. 19) to document the absence or geographical extent of any influx (houses and fields) that may be occurring.

5.6.2.2 INF 2: Minimizing Opportunistic In-Migration

<p>[OC- 50] Avoid creating induced access</p>	<ul style="list-style-type: none"> • Limit to the strict minimum the construction of new accesses on the <u>Neno side</u> of the Shire by the EPC Contractors: <ul style="list-style-type: none"> ▪ Ensure that the construction of the regulating dam is undertaken from the Blantyre side and that no new accesses from the S137 to the Regulating dam is created by the EPC Contractor on the Neno side; ▪ Ensure that the access required from the S137 to the main powerhouse, on the Neno side, for the 400kV transmission line construction uses the right-of-way of the power line, and does not create a new access in addition to the service track required for the operation and maintenance of the line by ESCOM. This is important as the S137-regulating reservoir section of the 400kV TL will encroach into the proposed conservancy area. ▪ Design and install a gate for ESCOM to enter into the proposed conservancy area at the new fence. • Implement the legal, community-engagement, and structural activities required to ensure that the new main-dam / regulating dam road on the <u>Blantyre side</u> is (i) private, (ii) identified and understood as such by the nearby communities, (iii) equipped with required signage, (iv) managed through a permit-process for approved access for local residents and (v) routinely patrolled to monitor illegal uses.
<p>[OC- 51] Plan, institutionalize and install checkpoints on induced accesses</p>	<ul style="list-style-type: none"> • Discuss with Majete WR management the location, design, staffing and management of new checkpoints, financed by the Project, to minimize incremental poaching and logging pressure due to induced access, at the following locations: <ul style="list-style-type: none"> ▪ S137 road, Blantyre Side, at the junction between the S137 and the new private main dam to regulating dam road; ▪ S137 road, Neno side, along the new S137 section built by the Project to link the Mpatamanga dam bridge to the existing S137 road in Feremu; ▪ Road that runs parallel to the Majete eastern boundary, close to the junction with the 132kV line and its new access track. • Discuss and agree with Majete WR management if and how Majete WR security staff could be involved in these checkpoints day-to-day operation; • Engage with downstream sugar estates, learn and describe lessons from operation of the existing boom gates along the M1 road; • Include in the Project Security Plan a plan for checkpoints installation and operation, describing the proposed infrastructure, location, staff, control and police activities. • Engage with the relevant governmental authorities, present the proposed checkpoints plan. Screen what institutional arrangements must be implemented to ensure that checkpoints (i) operate within national laws, and (ii) how arrested poachers and traffickers would be handed over to the police. • Establish a MoU with the relevant governmental authorities that describes the responsibilities between GoM and MHPL, for ownership, staffing, operation, reporting and financing of the new checkpoints. • Undertake detailed design for the checkpoints’ facilities, procure and built, within the first year of the new access construction (main dam to regulating dam road on Blantyre side, S137 portion of the Neno side). • Examine the relevance of delegating to the EPC Contractor responsibility for managing the checkpoint located on the main dam to regulating dam service road
<p>[OC- 52] Operate the new checkpoints during construction</p>	<ul style="list-style-type: none"> • Recruit dedicated checkpoint staff. • Ensure they understand wildlife laws, poaching methods, and the importance of their role. Train checkpoint staff on wildlife identification, legal frameworks, and enforcement procedures. • Equip checkpoints with necessary tools (e.g., binoculars, cameras, communication devices).



	<ul style="list-style-type: none"> • Conduct thorough inspections of vehicles, cargo, and passengers. • Coordinate with local law enforcement, Majete park rangers, and communities. Share intelligence among checkpoints to stay ahead of poachers. • Legal Framework and Prosecution: <ul style="list-style-type: none"> ▪ Ensure that checkpoints operate within national and international legal frameworks. ▪ Share information with relevant authorities (e.g., wildlife agencies, law enforcement). • Document the activity: <ul style="list-style-type: none"> ▪ For inspected vehicles, record the type of animals being transported, their numbers, and any relevant identification (e.g., microchips, tags) and report vehicles containing wild fauna to the police ▪ For threatened animal species, if living, document any signs of distress, injuries, or violations. ▪ Maintain records of inspection, where relevant (e.g. sharing information with authorities).
<p>[OC- 53] No recruitment at camp or work site</p>	<ul style="list-style-type: none"> • Verify that EPC Contractors' recruitment centres in Zalewa and Blantyre are available and operational at the early stage of construction. Increase visibility of these recruitment centres through announcement in local media, Project's website, and billboards located at strategic locations. • Execute communications campaign to manage expectations and discourage spontaneous influx of job seekers (World Bank, 2016). • Include the key message "no recruitment undertaken at the Project site or at any of the contractor-led activities" into communications targeting local communities and job applicants. • Undertake regular interviews of local workers to document how and where their recruitment was undertaken to detect violation of the 'no recruitment on site' rule. • Set up a system with the head of villages to avoid that recently arrived in-migrants who settle in affected communities join the list of prioritized workers. This system will be established with the District authorities and include a third-party control to ensure the list is not managed solely by village chiefs. • Agree the location of appropriate bus stop with the EPC Contractor. • Examine the relevance of i) organizing regular transportation of applicants living in the affected communities to visit the Recruitment Centers and implement as applicable, or ii) requesting the EPC Contractor to send its Recruitments officers in the designated local villages to perform interviews with workers previously registered as interested to work for the project, and recruit workers.
<p>[OC- 54] Goods and Supplies Purchasing Practices</p>	<ul style="list-style-type: none"> • Work with the EPC contractors to ensure that Project goods / services will not be purchased at Project camp sites or work locations and that Goods / services only procured through formal contracts via approved suppliers. • Assist local suppliers in being registered as approved suppliers by EPC Contractors, as applicable. Discuss with community representatives how to avoid that 'local-first' benefits and prioritisation promoted by the Project encourages migrants to settle close to the worksites to benefit from this policy. • As local communities will likely want to establish stalls and sell their goods, discuss with their representatives to establish rules, Project's support, and monitoring as follows: <ul style="list-style-type: none"> ▪ Designate a location at distance of the camp and worksites, to establish a formal market, taking into consideration available land. ▪ Work with communities to distribute information about small enterprises, both formal and informal, who are allowed to set up stalls, with limits on volume/type of goods sold (no drugs, no alcohol, no employed children of school age, etc.) ▪ Negotiate with communities a set of controls for the operation of the market(s) including days and times of operation; who can establish a stall (with priority for local people); waste management and sanitation; excluding children aged 15 years and under as stall holders/workers etc; and a drugs and alcohol ban.



	<ul style="list-style-type: none"> Upon completion of construction the market location will be disbanded and the area rehabilitated and revegetated, unless the community requests otherwise.
[OC- 55] Workers Accommodation strategy	<ul style="list-style-type: none"> Verify monthly that all non-local workers live in camp accommodation, especially primary supply workers, through regular audits on EPC Contractors supply chain and observations from CLOs embedded into the affected communities. Issue non-conformities as required. As entertainment venues such as night clubs may be established near the camp and attract more people to the area, and/or increased unwanted behaviours, ensure that the EPC Contractors: <ul style="list-style-type: none"> Prohibit all Project workers (including subcontractors) from going to entertainment venues established in or near the Project area or Camp. Do not permit workers at the Camp to leave at night to go to an entertainment venue. Workers who wish to leave the Camp at night and on weekends must get permission from the Camp Manager/HSSE Manager and have an acceptable reason, and record their intended destination/activities. Leaving to go drinking on weeknights will not be a valid reason to grant a permit. Applications and permits for Camp leave will be recorded and security practices scrutinized by MHPL as part of ongoing compliance checks. Enforce strict rules to restrict visitors to the Camp and does not allow visitors at night.
[OC- 56] Eligibility for resettlement and compensation	<ul style="list-style-type: none"> Opportunistic in-migration to capture compensation and/or benefits from the resettlement process is a real risk. Apply the RAP defined measures on cut-off date for eligibility in compensation process. Announced widely the cut-off date once effective, with key message that houses / assets-built post cut-off date are not eligible. Undertake continuous engagement of community leaders and influencers to manage opportunistic in-migration into areas affected by physical and/or economic displacement.
[OC- 57] Engage with in-migrants	<ul style="list-style-type: none"> To the extent that influx hotspots develop, engage with the in-migrants to ensure they understand their rights in terms of access to employment and contracting opportunities.

5.6.2.3 INF 3: Community Resilience Strengthening

[OC- 58] Raise awareness on adverse effects linked to project-induced in-migration	<ul style="list-style-type: none"> Work with selected traditional community leaders to identify what and how key messages on the risk associated with project-induced in-migration should be conveyed. Prepare a set of influx awareness raising material – Test and improve. Prior to the start of the early works activities, engage the two TAs – and their GVHs - potentially most exposed to induced in-migration (Kunthembwe and Mlauli) to (i) inform on the scale of labour influx and potential associated job seekers influx, (ii) build awareness and understanding on in-migration and its adverse impacts (health; pressure on infrastructure, services and utilities; social and community wellbeing; increased demand for land, housing and accommodation; competitive land uses and charcoal making), (iii) discuss the relevance of, and the respective roles and responsibilities in, pro-active influx management. Execute and document dedicated discussions at village level.
[OC- 59] Building Capacity in Affected Communities	<ul style="list-style-type: none"> Select, and retain the services of, a qualified person or NGO to develop a detailed Capacity Building Programme for communities likely to be affected by project induced in-migration, as predicted in the 2024 ESIA. Prepare and develop a series of integrated resilience programs to strengthen community structures. Potential topics for community strengthening (Total E&P, 2020) include: <ul style="list-style-type: none"> Introduce and implement approach to community-based security;



	<ul style="list-style-type: none"> ▪ Strengthened community law and order and conflict management systems (community courts and traditional systems), including aspects of conflict analysis, communication, negotiation, facilitation and mediation; ▪ Strengthening of community-based structures – to review and assess the mandate of existing community organizational structures and current capacity to address challenges, including influx, local development and natural resource management, with a view of expanding their mandate (if appropriate) to address new challenges, or to, together with development partners and local leadership identify opportunities to create new representative community-based structures and leadership to address new challenges (such as influx); ▪ Sustainable and responsible use and management of natural resources including sustainable timber use, water, fishery and land, relating this to livelihood and income-generating activities; ▪ Health, health behaviour, sanitation, nutrition – the Project will implement programs in accordance with the Community Health Management Plan (see section 5.8); ▪ Fire and rescue capabilities – the project will extend the community safety and security management plan to consider how the Project will respond to fires in local communities., including resettlement sites. ▪ Good neighbours – to promote the peaceful co-existence of communities in the same geographic area that hold different visions, development aspirations, are party to different benefit streams and suites of opportunities; ▪ As cross-cutting themes, gender mainstreaming and vulnerability inclusion. Strengthening measures focused on vulnerable people should include measures to monitor and act on changed levels of vulnerability.
<p>[OC- 60] Spatial planning</p>	<ul style="list-style-type: none"> • Select, and retain the services of, a qualified person or firm to develop detailed spatial and urbanisation plan for the Group Villages identified as most exposed to potential influx in the 2024 ESIA: Kaliati, Feremu and along the S137 road (Gwadani, Kunthembwe and Kadikira). • Develop spatial and urbanisation plans based on the below guiding principles. <ul style="list-style-type: none"> • Engage GVHs most exposed to influx risk, their TAs and relevant District authorities to discuss the risks of unplanned and uncontrolled development, and the necessity to be prepared and proactively plan for an influx of people. • Assess current status services and utilities in targeted Group Villages and their adequacy/capacity to meet predicted influx. • Examine existing Village, TA and District development plans and assess: <ul style="list-style-type: none"> ▪ Readiness with projected influx scenarios. For Kaliati and Feremu Group Villages, assess how the planned Resettlement Sites development factors in likely increase of population due to in-migration. ▪ Need for, and support required (e.g. engineering, contracting, technical assistance) to enable establishment or improvement of priority infrastructure (e.g. water supply and health). ▪ Capacity development of local government agencies, communities, and civil society organization, potentially through the development and implementation of an institutional support program, to enable adequate provision of social services, land use planning, natural resources management in relation to influx. • Support the relevant authorities in planning urbanization (the support is a technical support and does not imply that MHPL will fund the proposed infrastructure and services): <ul style="list-style-type: none"> ▪ Define the desired future state for the Group Villages exposed to influx, and set clear goals related to housing, infrastructure, environment, and social equity; ▪ Zone land use (areas for residential, farming, market, recreational purposes, natural resources that must be preserved) and determine appropriate population density in different zones. ▪ Define improvement and/or expansion of existing infrastructure and services (water supply, sanitation, electricity, schools and teachers, access to medical services, transport).



	<ul style="list-style-type: none"> Propose implementation arrangements: Prioritize projects based on urgency and feasibility, allocate resources (financial, human, technical), establish a timeline for implementation.
[OC- 61] Consistency with LADP, Community Health and RAP initiatives	<ul style="list-style-type: none"> Check consistency with the management actions planned through the other subplans included in this ESMMP, who may target the same communities and promote similar initiatives than this influx strategy. Streamline Project’s support and implementation arrangements accordingly Consult stakeholders on draft urbanization plans and finalise
[OC- 62] Support improvement and/or expansion of existing infrastructure and services in relation to influx	<ul style="list-style-type: none"> Support improvement in status and capacity of selected services and utilities based on assessment and priority plans. Regularly assess progress toward goals. Adjust the plan as needed based on feedback and changing circumstances.

5.6.3 Implementation and Monitoring Actions during Operation

5.6.3.1 INF 1: Planning & Monitoring

[OO- 23] Evaluation of Influx plan performance during construction period	<ul style="list-style-type: none"> Evaluate the past years influx management initiatives funded by the Project (checkpoints, capacity building, support to improvement and/or expansion of existing infrastructure and services). Review and integrate lessons learnt on governance, technical partners, impacts, sustainability. Use the Multi Stakeholder Forum to consult with local stakeholders, conduct perception survey and revise community support on influx management accordingly.
[OO- 24] Minimize non local fishers in-migration	<ul style="list-style-type: none"> Work with local authorities to advance the competitive abilities of communities living around the main reservoir with regard to reservoir fisheries, Assess if the following is feasible, and incorporate into the revised influx management support strategy, as applicable: <ul style="list-style-type: none"> Ban access to reservoir fisheries to migrants for the first 10 years post main reservoir filling. Implement fishing licenses and permits to control the number of fishers entering the area, under the fisheries department control Empower local fisher associations to manage resources effectively. Raise awareness about sustainable fishing practices and the importance of resource conservation. Establish monitoring systems to track fisheries activities undertaken by non-local residents. Identify synergies and potential redundancies with planned Reservoir Management Plan (Section 5.14) and planned RAP (Section 5.4).
[OO- 25] Revise management strategy for first years of operation	<ul style="list-style-type: none"> Draft a revised strategy for the first three years of operation, based on (i) the evaluation outcomes, knowledge gained on local needs and impacts of the influx management support implementation, and (ii) the selected non local fishers in-migration minimization strategy. Disclose

5.6.3.2 INF 2: Minimizing Opportunistic In-Migration

[OO- 26] Operate the new checkpoints during operation	<ul style="list-style-type: none"> Maintain dedicated checkpoint staff and continue checkpoint staff training on wildlife identification, legal frameworks, and enforcement procedures, as required. As for the construction period: <ul style="list-style-type: none"> Conduct thorough inspections of vehicles, cargo, and passengers.
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	<ul style="list-style-type: none"> ▪ Coordinate with local law enforcement, Majete park rangers, and communities. Share intelligence among checkpoints to stay ahead of poachers. ▪ Share information with relevant authorities. ▪ Maintain records of inspection, where relevant (e.g. sharing information with authorities).
[OO- 27] Minimizing non local fishers in-migration	<ul style="list-style-type: none"> • Provide the agreed support to advance the competitive abilities of communities living around the main reservoir with regard to reservoir fisheries and minimize in-migration from non-local fishers. • Monitor efficiency

5.6.3.3 INF 3: Community Resilience Strengthening

[OO- 28] Community Resilience Strengthening Initiatives during Operation	<ul style="list-style-type: none"> • Establish scope of work for technical assistance, retain the services of technical partners and execute the works, services or supply for the agreed community resilience strengthening initiatives for the operation period on: <ul style="list-style-type: none"> ▪ Capacity building in affected communities; Community-based security; Order and conflict management systems (community courts and traditional systems); Community organizational structures improvement; Sustainable and responsible use and management of natural resources; Community health, and Gender mainstreaming and vulnerability inclusion. ▪ Planning and improvement and/or expansion of existing infrastructure and services in relation to influx during operation
[OO- 29] Monitor performance of influx management support	<ul style="list-style-type: none"> • Regularly assess progress toward goals. • Adjust the strategy as needed based on feedback and changing circumstances.



5.7 Downstream Floodplain

5.7.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> • Sediment trapping into the main reservoir will result into significant changes in sediment load in the Shire River downstream of the regulating dam. This, in turn, will likely result in riverbed incision and riverbank erosion downstream of Kapichira, with potential knock-on effects on the river water level, groundwater level in the floodplain, soil moisture and frequency of flood plain floods. The flood plain is intensively used for crops cultivation. Wetlands are supporting biodiversity and fisheries. Changes in the floodplain hydrology, hydrogeology and soil quality would result in significant adverse effects on livelihoods and ecosystems. Prediction of the location, magnitude and temporality of changes require detailed investigations and modelling, and even with such modelling, the results would not be conclusive. Establishment of a relevant and effective set of monitoring and mitigation measures require a participative approach involving people who may be affected. • The objective of this sub-plan is to present the downstream strategy, as follows: A monitoring and mitigation strategy will be developed prior to reservoir filling to minimize the potential adverse effects on floodplain farming and fisheries resulting from progressive and long-term riverbed incision and riverbank erosion, downstream of the Kapichira dam based on (i) geotechnical, groundwater, ecology and socio-economic surveys and baseline monitoring, (ii) detailed hydraulic modeling, (iii) meaningful and transparent stakeholder engagement, (iv) comprehensive monitoring of land use, river and floodplain geomorphology and hydrology, and (v) preparedness and response plan for affected areas.
Component	<p>Three components form the present plan:</p> <ul style="list-style-type: none"> • DOWN 1.- Floodplain Investigations • DOWN 2.- Monitoring and Independent Review Panel • DOWN 3.- Management and Response Planning
Timeframe	<ul style="list-style-type: none"> • Investigations and definition of strategy during construction • Implementation and monitoring during construction and operation
Responsibility	MHPL
Performance Criteria	<p>DOWN 1:</p> <ul style="list-style-type: none"> • Timely execution of geotechnical , groundwater, soil moisture, land use, water use and habitat investigations, as well as revised lateral erosion prediction and interactions between groundwater and surface water in the Shire river floodplain between Kapichira and the confluence with the Mwanza River; • Updated predictions on the extent and location of (i) riverbank erosion, (ii) lowering of groundwater level and soil moisture content related to incision, (iii) change in hydraulic connectivity between the main channel and the floodplain. <p>DOWN 2:</p> <ul style="list-style-type: none"> • Downstream floodplain monitoring program for hydrology, geomorphology, land use, groundwater and soil moisture content level developed and implemented in a transparent and participatory manner; • Results of the floodplain monitoring programme shared with key stakeholders and used by the Project to adjust intervention strategies; • Project’s grievance redress mechanism operational for the downstream communities. <p>DOWN 3:</p> <ul style="list-style-type: none"> • A strategy for mitigating impacts on floodplain agriculture and fisheries is developed in which potential measures are screened, defined and prioritized, such as (but not exclusively): floodplain small-scale irrigation and lower water demand crops initiatives, Floodplain Fishery Intensification initiatives, and Chikwawa Bridge foundations Monitoring or Protection measures. • Selected initiatives planned for priority reaches (exposed to erosion consequences in first 10 years) through a Preparedness and Response Plan.



5.7.2 Implementation and Monitoring Actions during Construction

5.7.2.1 DOWN 1: Floodplain Investigations

<p>[OC- 63] Definition of site investigation programme</p>	<ul style="list-style-type: none"> • Undertake comprehensive field reconnaissance of the floodplain and hillside between Kapichira and the confluence with the Mwanza River to characterize the geological, groundwater, hydrography, land & water use context. • Define and scope the site investigation programme for groundwater, geotechnical modelling work. • Allocate resources and responsibilities in MHPL to lead the downstream investigation programme and assessment. • Procure technical assistance, as required.
<p>[OC- 64] Risk assessment for the Chikwawa Bridge foundations</p>	<ul style="list-style-type: none"> • Collate data on the foundation of the Chikwawa bridge from relevant governmental agency, donor or construction company which managed the construction of the bridge. • Determine how/if the bridge may be affected by the incremental incision/erosion risks related to changes in sediment fluxes. • Prepare a technical note on the risk assessment associated with the incremental riverbed incision and/or bank erosion on the stability of the bridge foundations, the temporality of this risk, and the required additional maintenance, monitoring or protection provisions, as applicable. • Communicate the outcome of this risk assessment to the relevant stakeholder groups as provisioned in DOWN 2 below.
<p>[OC- 65] Geotechnical investigations on riverbed and riverbank conditions</p>	<ul style="list-style-type: none"> • Commission geotechnical surveys aiming at: <ul style="list-style-type: none"> ▪ Assessing where is the non-erodible layer in the Shire Riverbed from Kapichira and the confluence with the Mwanza River at strategic locations, as required following the analysis of results acquired in May-June 2024; ▪ Assessing the geotechnical conditions of the riverbanks and the floodplain to predict the erosivity potential through relevant surveys, e.g. sediment sampling, core drilling, excavations. • Map the horizontal and vertical extent of erodible and non-erodible layers along the Shire River and floodplain in the affected area at a relevant scale
<p>[OC- 66] Revise and refine the riverbed and riverbank erosion prediction</p>	<ul style="list-style-type: none"> • Using the result of the geotechnical investigations on bed and bank conditions, revise the impact prediction undertaken in 2024 on riverbank erosion. • Map the areas predicted to be eroded within the next 30 years, and predict the incremental extent of lateral erosion, together with land and assets exposed to such erosion, per period of 5 years or other relevant time periods.
<p>[OC- 67] Groundwater baseline monitoring and modelling</p>	<ul style="list-style-type: none"> • Select existing wells as monitoring stations, or • Install piezometers at strategic locations as applicable • Install water level measurement device at selected (oxbow) lakes / wetlands • Undertake first round of groundwater and lake level monitoring • Establish a groundwater model. • Couple with a 2D hydrodynamic model to take into account the main channel/floodplain hydraulic connectivity, using the bathymetry/LIDAR data acquired in 2023. • Understand and describe interactions between groundwater and surface water (Shire, tributaries, lakes, and wetlands) in the floodplain. This is crucial for understanding how changes in one system affect the other. • Simulate the baseline situation, using data collected from first round of groundwater level monitoring. • Predict change in groundwater levels, flow rates, and the movement of water within the geological formations of the floodplain, resulting from the lowering of the Shire main channel. • Draft the detailed groundwater impact assessment report.
<p>[OC- 68] Inventory and Map Water and</p>	<ul style="list-style-type: none"> • Based in the findings of the geotechnical investigations, prioritize, plan and organize additional data collection for the following elements, in the Shire River



<p>Land Use in the Floodplain</p>	<p>floodplain, from the Kapichira dam to the junction with the Mwanza River, as applicable:</p> <ul style="list-style-type: none"> ▪ Water sources (locations of rivers, lakes, wetlands, and groundwater extraction sources), ▪ Type of connections between the Shire main channel and the backswamp, lakes and wetlands in the floodplain: natural channels, water intakes. ▪ Water consumption areas (areas where water sources are used for farming, irrigation, cattle watering, fishing or domestic purposes), ▪ Land use: Location, seasonality and type of (i) farming activities (rainfed, floodplain recession, soil moisture, irrigation from willow holes), (ii) natural vegetation (shrubland, woodland, wetland) and (iii) built-up / residential areas. ▪ Seasonality and type of fishing activities, type of fish caught and importance for livelihoods. <ul style="list-style-type: none"> • Acquire high resolution imagery for both the rainy season and the dry season. • Establish a preliminary water use and land use map based on remote data. • Commission a socio-economic survey to (i) groundtruth the land/water use map and (i) interview floodplain land and water users to inform the above listed indicators. • Draft the detailed floodplain land and water used report, from Kapichira to confluence with the Mwanza, or appropriate downstream limit of influence as determined by the geotechnical investigations.
<p>[OC- 69] Inventory and Map Habitats in the Floodplain</p>	<ul style="list-style-type: none"> • Establish a preliminary habitat mapping based on remote data. • Commission a biodiversity field survey to groundtruth the habitat map and inventory the associated fauna and flora species. • Draft the detailed floodplain habitat report, from Kapichira to confluence with the Mwanza, as applicable.
<p>[OC- 70] Identifies affected GVHs</p>	<ul style="list-style-type: none"> • Based on secondary data collected at the District level, complemented by primary data collected with the Group Village Head (GVH) as required, identify in each GVH the villages using the floodplain from Kapichira to downstream limit of influence.
<p>[OC- 71] Draft the revised downstream erosion and groundwater impact assessment</p>	<ul style="list-style-type: none"> • Based on the outcome of the geotechnical, groundwater, land use, water use and habitat investigations, as well as the revised modelling for lateral erosion and interactions between groundwater and surface water in the floodplain, prepare a revised downstream floodplain impact assessment report. • Confirm or revise the prioritization of potentially impacted floodplain reaches predicted in the 2024 ESIA: <ul style="list-style-type: none"> ▪ Reach 1: Kapichira to 11km downstream potentially affected within 10 years of operation; ▪ Reach 2: 11km upstream of Chikwawa Bridge to Bridge potentially affected within 30 years of operation; ▪ Reach 3: Chikwawa Bridge to 11km downstream potentially affected within 50 years of operation. • Present and disclose the report as required by the Stakeholder Engagement Plan.

5.7.2.2 DOWN 2: Monitoring and Independent Review

<p>[OC- 72] Develop the downstream floodplain monitoring program</p>	<ul style="list-style-type: none"> • Develop the downstream floodplain monitoring program based on guiding principles indicated in the below management actions. • Consult, receive and consolidate comments on the draft plan from relevant government agencies and consider them in the revision to this plan.
<p>[OC- 73] Downstream river geomorphology and floodplain land use monitoring</p>	<ul style="list-style-type: none"> • Acquire every year high resolution satellite imagery covering the floodplain from Kapichira to Mwanza confluence. • Select high risk reaches of the floodplain most exposed to potential bank erosion and groundwater level and soil moisture content lowering. Commission annual focused DTM LIDAR campaigns with drones along these selected high risk reaches, to document changes in geomorphology. Adjust frequency and



	<p>spatial scope of focused DEM LIDAR campaigns as a function of exceptional flood events.</p> <ul style="list-style-type: none"> Assess, quantify, map and report on geomorphological changes (main channel, riverbanks, secondary channels and wetlands in the floodplain) and affected land use (e.g. shrubland, farmland, residential) and water use (e.g. fishing ponds, wells) against baseline, and relate to hydro-meteorological (e.g. typical flow regime or extreme events such as cyclones) and reduced sediment input drivers.
[OC- 74] Downstream floodplain groundwater / soil moisture content level monitoring	<ul style="list-style-type: none"> Assess if the location and number of piezometers/observation points used for the detailed investigations are sufficient to monitor in the long term the changes in groundwater level and soil moisture content over the downstream area of influence. Complement with additional piezometers and soil moisture probes, as required, to detect significant changes from north to south in the floodplain, but also along lateral distance to the river. Organize frequent data collection, at least weekly, of groundwater level monitoring by each piezometers. Assess, quantify, map and report on the state of aquifers in the floodplain against baseline.
[OC- 75] Downstream Hydrology monitoring	<ul style="list-style-type: none"> Install downward facing non-contact river water level measurement device (e.g. Radar) on the bridge. Develop and maintain accurate rating curves. Record daily water levels and daily river flow at the Chikwawa Bridge. This will be used to establish the relationship between the Shire River water level and the changes in groundwater level in the floodplain. It will also be used to determine if there are any significant variations in sub-daily water level and flow downstream of Kapichira HPP, and confirm these are not a result of Mpatamanga HPP operations. Install water level staff gauge at selected strategic lakes and wetland in the floodplain to monitor changes in water level and define trend against baseline. Install local meteorological station in the floodplain to estimate rainfall and evaporation and define crop water/irrigation requirements. Assess, quantify, map and report on flow and water level alteration in the Shire and in the floodplain against baseline.
[OC- 76] Developing a Participatory Monitoring Plan with communities in priority reaches	<ul style="list-style-type: none"> The monitoring activities presented above aim at measuring performance of the mitigation strategy and at highlighting any ongoing problems. One way to help satisfy stakeholder concerns and promote transparency is to involve project-affected stakeholders in monitoring the key indicators of environmental changes and, as required, the implementation of mitigation measures. Participatory monitoring is not limited to MHPL consulting with affected stakeholders on environmental monitoring data. It will require the physical presence of affected individuals at the time that monitoring takes place, and involves methods and indicators meaningful to the stakeholders concerned (IFC, 2007). The management actions described below are taken from the Guidance for Participatory Monitoring (UNDP, 2021). The collection of data as part of the participatory monitoring plan will not take place until the participatory monitoring structure and procedures have been agreed and reviewed with, and approved by, the representatives and/or authorities of the project-affected communities. Prepare a draft participatory monitoring plan for the floodplain reach between the Kapichira dam to the downstream area potentially affected within 10 years of operation. This plan will include: (i) The approach and methodology of the program, (ii) Schedule of activities in relation to communities participating, (iii) How findings will be registered and communicated, and (iv) How will corrective actions be documented. Consult, receive and consolidate comments on the draft plan from Downstream Coordination Committee and consider them in revisions to this plan.
[OC- 77] Define objectives, indicators, activities and	<ul style="list-style-type: none"> Consult with the downstream floodplain communities that could be potentially affected by the Project within the first 10 years. Introduce the objective of the Participatory Monitoring process and to identify areas that could be monitored with the community including issues and or



resources with target groups for the Participatory Monitoring	<p>concerns of the communities due to the project that should or could require their involvement in monitoring.</p> <ul style="list-style-type: none"> Organize a planning workshop in each community. Brainstorm with the participants about the steps that should be completed before action is undertaken. Clarify goals jointly. Identify potential constraints, like the limits on time, money, or other resources; and together find ways to simplify the monitoring plan even more. Build, in a participatory way, monitoring indicators. Introduce the concept of Community Monitors. Identify effective communication mechanisms for providing results from the monitoring plan back to the community.
[OC- 78] Select and train the Community Monitors	<ul style="list-style-type: none"> Community Monitors will be persons selected by and with the Downstream Coordination Committees who will accompany MHPL monitors and actively participate in the monitoring activities. Select community monitors in a transparent manner, with documentation that these individuals have the support from their respective communities. For the priority indicators selected by the Downstream Coordination Committees, define and agree monitoring method: (i) Monitoring frequency of each indicator, (ii) Procedures/records to be used, (iii) Communication processes during the monitoring, (iv) Roles and responsibilities of the community monitors. Define the training needs for and with the Community Monitors.
[OC- 79] Implementation of the participatory monitoring activities	<ul style="list-style-type: none"> Conduct the training in each community identified, as required. Plan, coordinate and schedule participation of communities monitors during the construction period. This includes all logistics and measurement equipment. Coordinate with communities, monitors and other stakeholders on the best way to communicate results.
[OC- 80] Disclosure	<ul style="list-style-type: none"> Disseminate monitoring results as per the agreed strategy.
[OC- 81] Adjust the Grievance Redress Mechanism to the downstream communities	<ul style="list-style-type: none"> In the last year of the construction period, review the Grievance Redress Mechanism used during construction. Assess if changes are required to make it operational for assessing and resolve community feedback or complaints associated with downstream erosion and lowering of floodplain groundwater and lakes and wetland levels. Amend as required to consider that the Mpatamanga Project will not be 100% responsible for all geomorphological problems downstream of Kapichira. The Shire River may continue to meander with or without the project. This 'shared' responsibility, or the impossibility of allocating responsibilities, will need to be considered for the downstream grievance redress mechanism, when the management strategies are defined.
[OC- 82] Define the scope and timeframe for an Independent Review Panel	<ul style="list-style-type: none"> Define the scope of work for the appointment of an independent panel of expert(s) who would on annual basis: <ul style="list-style-type: none"> Review the methodology and results of the downstream monitoring and disclosure activities undertaken by MHPL; Review the grievances lodged by the downstream communities, identify and summarize grievances relevant to operation of the Project; Confirm or amend the long-term trend in downstream riverbed incision, riverbank erosion, floodplain groundwater and lakes and wetland levels; Attend the annual presentation to the Downstream Coordination Committees (see below) of the floodplain monitoring results undertaken by MHPL; Provide an opinion on the Project's responsibility with regards to impacts on downstream floodplain uses and identify the need and responsibilities for mitigation measures. One year before reservoir filling, select, and retain the services of, qualified person(s) or firm to provide the required expertise over several years post-construction.



5.7.2.3 DOWN 3: Management and Response Planning

[OC- 83] Scope and mobilize technical assistance	<ul style="list-style-type: none"> • Allocate resources and responsibilities in MHPL to lead the definition of the downstream mitigation strategy and implementation arrangements. • Scope and procure technical assistance, as required. • Mobilize resources accordingly
[OC- 84] Establish Downstream Coordination Committees with District and Floodplain Community Representatives	<ul style="list-style-type: none"> • Consult with the Chikwawa District authorities to define the most efficient forum (i.e. Downstream Coordination Committee, DCCs) to (i) discuss the temporality and cumulative aspects associated with predicted downstream erosion, (ii) be MHPL partner and facilitator to collect baseline and monitoring data land & water use, (iii) represent the interest of the communities living in the floodplain (e.g. Head of GVHs). • Participatory definition of the DCCs objectives and mechanism (rules and procedures, schedule, discussion, topics) with selected communities representatives
[OC- 85] Discussing strategy options	<ul style="list-style-type: none"> • Organize a first round of DCCs meetings to (i) explain the outcome of the 2024 ESIA impact prediction and uncertainties, (ii) the need to undertake the detailed survey programme as described in DOWN 1, (iii) the complexity of the definition of a mitigation strategy due to: <ul style="list-style-type: none"> ▪ The uncertainty of when, where and with what severity the incremental downstream erosion could materialize, ▪ The progressive and long-term aspects of the downstream erosion process that would require a staged approach over several decades, ▪ The cumulative aspects, the Mpatamanga project being only one of the impact-producing factors for downstream erosion. • Discuss what the options may be for mitigating the incremental downstream erosion effects resulting from the Project's operation; and the risks (e.g. avoid opportunistic settlement) and assumptions associated with the implementation of each option. • Align with strategies defined by NWRA or other relevant river authorities, as applicable. • Assess if and how the Village Action Plans are the relevant institutional planning tool to implement and monitor any project interventions associated with land and water use in areas exposed to downstream incremental erosion.
[OC- 86] Definition of floodplain agriculture management initiatives	<ul style="list-style-type: none"> • Scope, procure and commission a pre-feasibility study for the implementation of small-scale irrigation within the Shire floodplain on the right-bank and left-bank from Kapichira to the downstream area impacted within the first 10 years. For the right bank, examine additional options to extending the SVTP irrigation scheme. • The objective is to (i) identify where and how areas that could be exposed to lower groundwater and lower flood frequency could be supported to develop small-scale irrigation, and (ii) support change in agricultural practices towards use of varieties / crops with lower water demands. • Tasks include: <ul style="list-style-type: none"> ▪ Inventory of existing and planned irrigation scheme/initiatives, ▪ Water resource assessment for (i) current crops, (ii) recommended lower water demand crops, and (iii) cattle watering, ▪ Screening of small-scale irrigation methods: source of water (e.g. intake from tributary, pumping from groundwater, water tanks, extension of existing irrigation scheme) and transport to the parcel (gravity-fed, hand/electrical pumps, drip), ▪ Consultations with farmers who currently cultivate and farm livestock in the floodplain with and without irrigation, to identify opportunities and constraints associated with any proposed small-scale irrigation initiatives, ▪ Define target area and select methods for irrigation development, ▪ Cost-benefit analysis, considering investment costs, operational expenses, and potential income from irrigated crops, ▪ Proposed staged small-scale irrigation development programme in the floodplain and priority action plan for the first 10 years of Project's operation



<p>[OC- 87] Definition of Floodplain Fishery Intensification Programme</p>	<ul style="list-style-type: none"> • Scope, procure and commission a pre-feasibility study for the implementation of fishery intensification programme within the Shire floodplain on the right-bank and left-bank from Kapichira to the downstream area impacted within the first 10 years. • Tasks include: <ul style="list-style-type: none"> ▪ Inventory of existing intensification processes presently being applied to village (subsistence and small-scale commercial) fish production systems in the floodplain, and other villages on the plateau, which can be feasibly expanded or introduced, to the floodplain users; ▪ Review of these processes, and comparison with other possible systems being used in Malawi and other tropical subsistence situations. ▪ Liaise with the Department of Fisheries and assess how the National Plan of Action for the Implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the context of Food Security and Poverty Eradication (2023-2030) (Department of Fisheries, 2023) could be considered in the context of the Lower Shire floodplain. ▪ Consultations with villagers who currently fish in existing floodplain water bodies, with and without fishpond, to identify opportunities and constraints associated with any proposed small-scale fishery intensification initiatives ▪ Define target area and select methods for fishery intensification development, ▪ Cost-benefit analysis, considering investment costs, operational expenses, and potential income from fishery intensification initiatives, ▪ Proposed staged small-scale fishery intensification programme in the floodplain and priority action plan for the first 10 years of Project’s operation
<p>[OC- 88] Draft the Downstream Floodplain Management and Response Plan</p>	<ul style="list-style-type: none"> • Using the outcome of the revised impact assessment in section 5.7.2.1, define floodplain priority reaches, i.e. downstream floodplain reaches that may be first exposed to bank erosion and hydrology alteration (ground and surface water), or any other timeframe as resulting from the revised downstream erosion and groundwater impact assessment. • Based on the selected management options, e.g. small-scale irrigation, fishery intensification, Chikwawa bridge monitoring or protection, develop a Downstream Floodplain Management and Response Plan, and define: <ul style="list-style-type: none"> ▪ Selection criteria, e.g. Community safety (houses exposed to instability due lateral bank erosion); Livelihood security (farmland affected by lowering of floodplain groundwater and/or lateral bank erosion; fisheries affected by impaired wetland hydrology); ▪ Selected management solutions per floodplain reach within the priority reaches, e.g. small-scale irrigation, fishery intensification; ▪ Detailed implementation arrangements, including village planning tools, and institutional approach to freeze land development and avoid opportunities settlements in areas where community safety and livelihood could be affected; ▪ Logical framework for the Priority Action Plan, Budget, and Assumptions. ▪ Disclosure strategy: disclosure support, information to be disclosed, frequency and when to start, transparency.
<p>[OC- 89] Consultation Process</p>	<ul style="list-style-type: none"> • Present the Draft Downstream Floodplain Management and Response Plan to the Downstream Coordination Committees, discuss and amend. • Finalize the Downstream Floodplain Management and Response Plan for the first 10 years of operation (priority reaches), or other timeframe resulting from the revised impact assessment.



5.7.3 Implementation and Monitoring Actions during Operation

5.7.3.1 DOWN 1: Floodplain Investigations

[OO- 30] Supplementary site investigations	<ul style="list-style-type: none"> Plan and undertake any additional site investigations in the downstream floodplain, if required to further design or adjust the planned mitigation and management strategy defined during construction. Present and disclose the report as required by the Stakeholder Engagement Plan
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5.7.3.2 DOWN 2: Monitoring and Independent Review Panel

[OO- 31] Downstream river geomorphology and floodplain land use	<ul style="list-style-type: none"> Acquire every year high resolution satellite imagery covering the floodplain from Kapichira to downstream limit of influence. Commission annual focused DEM LIDAR campaigns with drones along the high risk reaches selected during construction, or adjusted as required, to document changes in geomorphology. Assess, quantify, map and report on geomorphological changes and affected land use and water use against baseline, and relate to hydro-meteorological and reduced sediment input drivers.
[OO- 32] Downstream floodplain groundwater level	<ul style="list-style-type: none"> Organize frequent data collection, at least weekly, of groundwater level monitoring by each piezometer. Assess, quantify, map and report on the state of aquifers in the floodplain against baseline.
[OO- 33] Downstream Hydrology	<ul style="list-style-type: none"> Maintain the downward facing non-contact river water level measurement device (e.g. Radar) on the bridge. Maintain accurate rating curves. Record daily water levels and daily river flow at the Chikwawa Bridge. Establish the relationship between the Shire River water level and the changes in groundwater level in the floodplain. Maintain water level staff gauge at selected strategic lakes and wetland in the floodplain, and record changes in water level to define trend against baseline. Maintain local meteorological station in the floodplain and estimate rainfall and evaporation to assist in updating crop water/irrigation requirements. Assess, quantify, map and report on flow and water level alteration in the Shire and in the floodplain against baseline.
[OO- 34] Implementation of the participatory monitoring activities	<ul style="list-style-type: none"> Refresh training in each community identified, as required. Plan, coordinate and schedule participation of communities monitors during the operation period. This includes all logistics and measurement equipment. Coordinate with communities, monitors and other stakeholders on the best way to communicate results.
[OO- 35] Disclosure	<ul style="list-style-type: none"> Disseminate monitoring results as per the agreed strategy.
[OO- 36] Implement the Grievance Redress Mechanism for the downstream communities	<ul style="list-style-type: none"> Collect and categorize grievances. Ensure timely acknowledgment of complaints and track their progress. Assess the validity of grievances and investigate relevance. Map the grievances along the floodplain and establish correlations with the results of the floodplain monitoring activities. Assess on an annual basis if, how and where a component of the Downstream Floodplain Management and Response Plan should be initiated Provide feedback to stakeholders on complaints.
[OO- 37] Mobilize the Independent Review Panel	<ul style="list-style-type: none"> Mobilize every year the independent panel of expert(s) to (i) review the results of the downstream monitoring undertaken by MHPL; (ii) review the grievances lodged by the downstream communities, (iii) review the long-term trend in downstream riverbed incision, riverbank erosion, floodplain groundwater and lakes and wetland levels; (iv) Attend the annual presentation to the Downstream Coordination Committees (see below) of the floodplain monitoring results undertaken by MHPL; and (v) Provide an opinion on the Project's responsibility



with regards to impacts on downstream floodplain uses and identify the need and responsibilities for mitigation measures.

5.7.3.3 DOWN 3: Management and Response Planning

<p>[OO- 38] Revise and update the Downstream Floodplain Erosion Preparedness and Response Plan</p>	<ul style="list-style-type: none"> Review the relevance of the Downstream Floodplain Erosion Preparedness and Response Plan on an annual basis, using lessons learnt from (i) the complaints lodged through grievance redress mechanisms, (ii) meetings with the Downstream Consultation Committees, (iii) the downstream monitoring, and (iv) the activities previously undertaken as part of the implementation of the Downstream Floodplain Erosion Preparedness and Response Plan, as applicable. Update as required.
<p>[OO- 39] Implementation of floodplain agriculture management initiatives if and when required</p>	<ul style="list-style-type: none"> If and as required by the outcome of the downstream monitoring, implement the irrigation components of the Downstream Floodplain Management and Response Plan. Select, and retain the services of, a qualified person or firm to advise MHPL in execution and monitoring. Procure the required Technical Assistance, Civil works contractors and supply of equipment and services. Implement the selected initiatives for floodplain agriculture, e.g. small-scale irrigation and lower water demand crops initiatives as defined in the Downstream Floodplain Management and Response Plan: <ul style="list-style-type: none"> Install infrastructure: Construct irrigation canals, pipelines, and distribution networks; Install pumps, filters, and control systems; Set up water storage facilities. Train local farmers on irrigation techniques, maintenance, and water management. Promote sustainable practices and efficient water use. Establish irrigation management committee (s), Monitor water distribution, maintenance, and repairs, (iii) Ensure equitable water allocation among farmers. Support farmers in selecting suitable crops for irrigation, including lower water demand crops. Facilitate access to markets for both inputs (seeds, fertilizers) and products. Regularly assess the programme’s impact on food security, income, and livelihoods. Adjust strategies based on feedback and lessons learned.
<p>[OO- 40] Implementation of fishery initiatives if and when required (or alternative measures to address fisheries impacts)</p>	<ul style="list-style-type: none"> If and as required by the outcome of the downstream monitoring, implement the selected Fishery management initiative of the Downstream Floodplain Management and Response Plan. Select, and retain the services of, a qualified person or firm to advise MHPL in execution and monitoring. Procure the required Technical Assistance, Earthworks contractors and supply of equipment and services. Implement the fishery intensification initiatives for priority reaches as defined Downstream Floodplain Management and Response Plan, e.g.: <ul style="list-style-type: none"> Aquaculture Development: Provide technical training to fish farmers on aquaculture techniques, Support the establishment and maintenance of fish ponds, Help farmers choose suitable fish species for cultivation, teach proper feeding practices and disease prevention. Fish Value Chain Strengthening: Enhance fish processing and preservation methods, Provide value chain actors with business skills. Regularly assess project impact and adjust strategies as needed.
<p>[OO- 41] Definition of Chikwawa Bridge foundations Monitoring or Protection Plan</p>	<ul style="list-style-type: none"> Based on the outcome of the Chikwawa bridge risk assessment and exposure to riverbed incision, as applicable scope, procure and commission a pre-feasibility study for the implementation of recommended strategy (monitoring, and/or additional maintenance, and/or or protection provisions). Design, cost and schedule at PFS stage the required measures.



5.8 Community Health

5.8.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	Prevent and/or mitigate impacts to community health that may occur during distinct Project phases.
Component	<p>Six components form the present plan:</p> <ul style="list-style-type: none"> • HEA 1.- Planning and governance • HEA 2.- Health System Strengthening • HEA 3.- Health Support Initiatives in Local Area Development Plan • HEA 4.- Resettlement Planning & Management • HEA 5.- Baseline Health Surveys & Monitoring
Timeframe	<ul style="list-style-type: none"> • Planning for subplan components will be performed pre-construction, with implementation prior to the start of the construction phase. • Implementation of measures and initiatives to be continued throughout the operations phase of the Project.
Responsibility	<ul style="list-style-type: none"> • MPHL
Performance Criteria	<ul style="list-style-type: none"> • HEA 1: <ul style="list-style-type: none"> ▪ Operational Community Health Committee ▪ Developed and signed off MOU with Neno- and Blantyre DHMTs ▪ Documented minutes of meetings of Community Health Committee and documented implementation activities by implementing partners as per the approved action plans. • HEA 2 to HEA 4: <ul style="list-style-type: none"> ▪ Needs assessments and appraisals completed for the planned different interventions (e.g. HSS, implementation partners, malaria and vector control,) community development). ▪ Malaria action plan available and executed, aligned to and in association with the National Malaria Control Plan and associated development partner. ▪ Documented information, education, and communication sessions to support social behavioural change and reduce vulnerabilities on various topics, including HIV and TB, malaria and vector related disease, water, sanitation and hygiene, nutrition, lifestyle factors and community road safety etc. ▪ Available site-based capacity to support entomological/ snail surveillance for vectors that may transmit malaria, arbo-viruses, onchocerciasis and schistosomiasis. ▪ Provisions in place to deal with outbreaks from water-related (cholera) or droplet (measles, Covid-19, novel condition) source. ▪ Improved community-level knowledge, attitude and practice on non/communicable diseases, and related risks and road safety, compared to baseline determined by cross-sectional baseline health survey. ▪ Malaria, schistosomiasis and soil transmitted helminth prevalence less than prevalence determined during cross-sectional baseline survey. ▪ No deterioration in nutritional indicators from baseline. ▪ No increased burden of disease from data collected from community cadres and health facilities including the following key conditions; TB, pneumonia and diarrhoea (especially in children under 5), HIV and sexually transmitted infections (use of antenatal care data as core element), malnutrition (e.g. stunting, wasting, marasmus, kwashiorkor, anaemia) and obesity, soil transmitted helminths and schistosomiasis, hypertension, diabetes, road traffic accidents, non-accidental injuries (physical assault, sexual assault), teenage pregnancy. • HEA 5: <ul style="list-style-type: none"> ▪ Documented Baseline health survey, baseline entomological survey and monitoring system. ▪ Documented community health surveillance system to support longitudinal monitoring of health trends and links to interventions



	<ul style="list-style-type: none"> ▪ 100% of local workers suspected with TB referred for care. ▪ 100% of local workers diagnosed with TB retained in care. ▪ 5% of local workers known with HIV, referred to and retained in care. ▪ 100% of local workers screened for and supported for non-communicable disease and mental health needs. ▪ 100% of eligible workforce vaccinated against preventable disease, according to occupational health plan.
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5.8.2 Implementation and Monitoring Actions during Construction

5.8.2.1 HEA 1: Planning and Governance

[OC- 90] Develop and Disclose the Community Health Management Plan	<ul style="list-style-type: none"> • Select, and retain the services of, a qualified person or firm to develop a detailed Community Health Management Plan and advise MHPL in execution and monitoring. • Prepare a Community Health Management Plan based on guiding principles indicated in the below management actions (HEA 2 to 4). Consult, receive and consolidate comments on the draft plan from relevant government agencies and consider them in the revision to this plan.
[OC- 91] Community Health Forum	<ul style="list-style-type: none"> • Develop internal human resource capacity to manage and implement the Community Health Management Plan. • Establish a Community Health Committee at the District Level (Neno and Blantyre each): <ul style="list-style-type: none"> ▪ MoU between the District Health Management Team and MHPL ▪ Agreement on role (e.g. malaria control), participants, content and frequency of meetings and support from MHPL ▪ Organization of the first Community Health Committee to establish the priority action plan for the construction period. ▪ Involve EGENCO, ESCOM, NGOs to address cumulative impacts across the broader project area as necessary • Prioritize the areas of concern identified by the 2024 ESIA on community health that will receive active support from the Project as listed in the following sections (Health System Strengthening, Communicable Disease, Monitoring, Community Development, WASH).

5.8.2.2 HEA 2: Health System Strengthening (HSS)

[OC- 92] Select Implementation Partner	<ul style="list-style-type: none"> • Write the scope of work of the Implementation Partner for the Health System Strengthening (e.g. NGO), procure and select. • Develop and maintain internal management and monitoring capacity.
[OC- 93] Support of District Health Management Teams (DHMT)	<ul style="list-style-type: none"> • Undertake a capacity needs assessment of the Neno and Blantyre District DHMTs on public outbreak preparedness and response capabilities. • Conclude on gaps against Project requirements for community health management and establish DHMT outbreak preparedness and response support strategy • Define a DHMT support priority action plan, that could include initiatives e.g. Training, equipment, logistical support, essential drugs, consumables. • Present the DHMT support priority action plan to, and get approval from, the Community Health Committee
[OC- 94] Support of Local Health Facilities	<ul style="list-style-type: none"> • Confirm the local health facilities (e.g. Chikowa, Chimemebe, Dziwe, Luwani, Chifunga) in each of the 2 districts that would need to be supported in relation the Project requirements for community health management. • The scope of work for HSS for local facilities include the following focus areas: <ul style="list-style-type: none"> ▪ Tuberculosis with integration into HIV/AIDS and STI management programmes. ▪ Vaccine preventable disease management, including expanded programme of immunisation (EPI) in children support



	<ul style="list-style-type: none"> ▪ Malaria and Onchocerciasis ▪ Schistosomiasis, Soil Transmitted Helminths and other WASH related diseases (e.g. diarrhoeal disease, including cholera, typhoid fever and dysentery). ▪ HIV and STIs ▪ Non-communicable diseases, with a specific focus on the resettled population and local workforce cohort. ▪ Malnutrition, with a specific focus on children in their first 1,000 days of life. ▪ Trauma related cases (e.g. resulting from road accident) • Undertake a capacity needs assessment of these local health facilities on the following operational elements as it pertains to the above focus areas: <ul style="list-style-type: none"> ▪ Awareness and education supporting health promotion and behaviour change for all abovementioned focus areas. ▪ Diagnostic and disease surveillance capabilities (including recency testing for HIV). ▪ Treatment initiation and -retention and follow-up of patients. ▪ Supply chain management related to medication, consumables as well as waste management. ▪ Outreach activities that considers community / household / school level awareness, -surveillance / monitoring, -screening, -treatment and mass drug administration for the abovementioned focus areas. ▪ Vector control including larval management and indoor residual spray, guided by the outcomes of the entomological survey. ▪ Distribution and utilisation of long-lasting insecticide treated bed nets (malaria only). <ul style="list-style-type: none"> ▪ Data collection, -collation and reporting capacity. • Conclude on gaps against Project requirements for community health management and establish a local health facilities support for above mentioned focus areas and operational elements. • Define a Local health facilities support priority action plan, that could include initiatives e.g. Training, equipment, logistical support, essential drugs, consumables. • Present the Local health facilities support priority action plan to, and get approval from, the Community Health Committee
<p>[OC- 95] Support of community health worker / Health Surveillance Agent (HSA) programmes</p>	<ul style="list-style-type: none"> • Inventory existing programmes and active health partners currently operating in the Project area in support to the HSA. Describe their focus areas, whether geographic (e.g. Neno north versus south), or from a technical perspective (e.g. malaria versus NCDs). • Conclude on gaps against Project requirements for community health management and establish HSA support strategy to complement the existing initiatives. • Undertake a capacity needs assessment of the HSAs against the proposed HSA support strategy. • Define a HSA support priority action plan, that could include initiatives e.g. training, right equipment, consumables, data collection on local level. • Present the HSA support priority action plan to, and get approval from, the Community Health Committee.

5.8.2.3 HEA 3: Health Support Initiatives in Local Area Development Plan

<p>[OC- 96] Synergies and complementarities between E&S workstreams</p>	<ul style="list-style-type: none"> • Set up a mechanism to ensure that synergies between environmental and social management workstreams (health, local area development, livelihood restoration, influx, safety) are (i) identified at planning stage and (ii) addressed in each of the sub-plan to maximize complementary and efficiency and avoid redundancy of effort. <ul style="list-style-type: none"> ▪ Review the initiatives listed below, and: ▪ Select and prioritize based on the principles described in the Local Area Development Plan governance and planning (See Section 5.13) and include in the ESMS annual work plan, as applicable.
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<p>[OC- 97] Include community health support into the Local Area Development Plan</p>	<ul style="list-style-type: none"> • Inventory existing initiatives and active health partners currently operating in the Project area in support of the below-mentioned community development initiatives: <ul style="list-style-type: none"> ▪ Community-level WASH initiatives: Structural (water and sanitation infrastructure) and Non-structural (hygiene promotion and behaviour change activities, support to operation and maintenance) measures; Clean community campaigns to address risks associated with transmission of WASH related diseases; Provision of alternative sources of drinking water to communities using the Shire River for domestic water and which are temporarily affected by altered reservoir water quality during filling. ▪ OneHealth initiatives, including veterinary/animal health initiatives, specifically zoonotic diseases related to animal husbandry, linkages to HSAs/community health workers, outbreak programmes and support for managing dogs, wild animal and snake bites in local health facilities. ▪ Food hygiene and waste management in local marketplaces in the Project area. • Determine areas of improvement and define potential support by the Project to complement existing initiatives.
<p>[OC- 98] Implement and monitor execution</p>	<ul style="list-style-type: none"> • Write the scope of work of the implementation partner for distinct initiatives targeting an Environmental Health Area (as listed above), select, procure and implement. • Monitor implementation performance and report on effective consideration of environmental health in the initiatives supported by the Project as part of the Local Area Development Plan.

5.8.2.4 HEA 4: Resettlement Planning & Management

<p>[OC- 99] Include community health support into the Resettlement Action Plan(s)</p>	<ul style="list-style-type: none"> • Include in the detailed Resettlement Action Plans (RAP) the following guiding principles for the prevention of community health impacts: <ul style="list-style-type: none"> ▪ Housing design to prevent overcrowding and ingress of vectors, while promoting adequate natural ventilation. ▪ Environmental controls such as adequate drainage to prevent vector breeding sites. ▪ Provision of basic services, including safe water and appropriate sanitation facilities. ▪ Measures to address potential for localised influx. ▪ Awareness and behaviour change initiatives related to WASH. ▪ Access to adequate amounts of appropriate and accessible fertile land. ▪ Optimisation of crop yields through improved farming methods. ▪ Focus on agriculture and fisheries as mainstay of livelihood restoration programs. ▪ Restoring access to water resource (drinking, cattle watering) for communities and ranches affected by loss of access to the Shire River prior to the start of the reservoir filling, and information sessions on what to expect. ▪ Initiatives to address mental health needs of resettled households, including: Screening, Specific interventions, and Surveillance. • Consult, receive and consolidate comments on the draft plan from relevant internal- and external stakeholders (e.g., government agencies) and consider them in the revision to this plan. • Plan and develop as part of the detailed Resettlement Action Plan preparation pre-construction (See Section 6.4) and implement as part of RAP implementation, as applicable.
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[OC- 100] Implement and monitor execution	<ul style="list-style-type: none"> • Write the scope of work of the implementation partner for distinct initiatives targeting an Environmental Health Area (as listed above), select, procure and implement. • Monitor implementation performance and report on effective consideration of environmental health in the initiatives supported by the Project as part of the Local Area Development Plan and as part of the Resettlement Action Plans.
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5.8.2.5 HEA 5: Baseline Health Surveys & Monitoring

[OC- 101] Develop Baseline Health Survey protocol and appoint Specialist	<ul style="list-style-type: none"> • Select, and retain the services of, a qualified person or firm to develop a detailed scope of work for a cross-sectional Baseline Health Survey (BHS), including: <ul style="list-style-type: none"> ▪ Sentinel sites. ▪ Household survey indicators. ▪ Biomedical survey indicators. ▪ Resources, equipment and consumables required. ▪ External stakeholder approvals, including ethical clearance. • Use the above-mentioned scope of work to select and appoint an appropriate specialist person and/or -firm to conduct the BHS.
[OC- 102] Conduct Baseline Health Survey	<ul style="list-style-type: none"> • Conduct the BHS to define and understand baseline conditions (determinants, vulnerabilities and burden of disease) related to: <ul style="list-style-type: none"> ▪ Malaria and other vector related diseases. ▪ Schistosomiasis and other WASH-related diseases. ▪ Sexually Transmitted Infections and high-risk Sexual Practices. ▪ Nutritional practices and malnutrition from children under five and women of reproductive age. • Prepare a BHS report based on the outcomes of the survey, receive and consolidate comments on the draft plan from relevant internal stakeholders. • Include relevant outcomes in the development of the above-described community health support initiatives: Health System Strengthening, Communicable Disease, WASH, and Health components of the Local Area Development Plan and the RAPs.
[OC- 69] Develop Entomological Survey strategy and appoint Specialist	<ul style="list-style-type: none"> • Select, and retain the services of, a qualified person or firm to develop a detailed scope of work for an entomological survey, including: <ul style="list-style-type: none"> ▪ Identifying the main vector species, considering seasonality. ▪ Identifying the presence/absence of <i>An. An. Stephensis (Malaria)</i>. ▪ Vector behaviour to direct controls. ▪ Insecticide susceptibility to direct controls and subsequent management. ▪ Assessing if water velocities downstream of the spillways and downstream of the regulating dam are conducive to the breeding of <i>Simulium</i> blackflies. ▪ Assessing how the main reservoir increases potential mosquito breeding sites, vector densities and bite rates, and the risk of contracting malaria. • Use the above-mentioned scope of work to select and appoint an appropriate specialist person and/or -firm to conduct the entomological survey and follow on surveillance.
[OC- 103] Conduct Entomological Survey	<ul style="list-style-type: none"> • Conduct a baseline Entomological Survey to define and understand baseline conditions related to vector related diseases. • Prepare an Entomological Survey report based on the outcomes of the survey, receive and consolidate comments on the draft plan from relevant internal stakeholders. • Plan and implement surveillance. • Include relevant outcomes in the development of the above-described community health support initiatives: Health System Strengthening, Health components of the Local Area Development Plan and the RAPs
[OC- 104] Development of Longitudinal Monitoring Team	<ul style="list-style-type: none"> • Select, and retain the services of, a qualified person or firm to perform and/or coordinate longitudinal monitoring of community health indicators, as determined by the outcomes of the BHS and Entomological Survey, including:



	<ul style="list-style-type: none"> ▪ Selected community health indicators, as determined by the outcomes of the BHS, and collected by the HSA and on local health community level. ▪ Presence and the density of the intermediate snail hosts responsible for schistosomiasis. ▪ Longitudinal monitoring of water sources (quantity and quality) around the two reservoirs.
<p>[OC- 105] Monitoring of implementation of EPC Contractors workers health specifications</p>	<ul style="list-style-type: none"> • Monitor the tuberculosis management measures implemented for the workforce (including local and non-local workers) e.g. screening, education and treatment elements. • Verify that: <ul style="list-style-type: none"> ▪ A service level agreement with the Blantyre- and Neno district health services has been established to support the care and treatment of employees/contractors for tuberculosis (and HIV, when required) so that when employees/contractors leave the Project that they can be referred back into the public health system or traced to their place of origin. ▪ A vaccine preventable diseases programme is effective for all workers against relevant vaccine preventable diseases based on risk: a primary or booster measles vaccine and seasonal influenza vaccines, quadrivalent meningococcal meningitis vaccine (even though Malawi is not located in the seasonal meningitis belt) and vaccines based on occupational risk profiles, e.g., typhoid for food handlers, hepatitis B for medical/ fire and rescue teams. • Ensure that EPC Contractors have developed an Outbreak Preparedness Plan to reduce the impact of any suspected or confirmed outbreak of disease that may affect workforce health and business continuity. This should include novel conditions that may present as respiratory pandemics (e.g., pandemic flu, COVID-19), measles and meningitis, as well as diseases that are relevant to other environmental health areas like malaria, cholera, zoonotic and others. • Ensure that EPC Contractors have developed protocols and procedures for managing dogs, wild animal and snake bites, including post exposure vaccination and procurement and safe use of snake bite antivenom. • Work with the EPC Contractors’ medical team to align messaging used in the workforce with that used in the communities so that messaging on communicable disease is consistent. It is crucial that the initiative is developed and implemented in collaboration with the district health authorities. • Monitor the effective implementation of malaria control measures for the workforce, including: <ul style="list-style-type: none"> ▪ Appropriate information, education and communication campaigns that consider relevant languages and cultural approaches. Include malaria risk as criteria for fitness to work (based on immune status and other underlying medical conditions) in pre-assignment medical examinations in non-immune employees. ▪ Bite prevention measures in the form of insecticide treated clothing in risk groups, insect repellents, ITN in accommodation units, as well as effective vector management in the workplace (camp and worksites). This includes screens, self-closing doors, heating, ventilation and air conditioning units etc. ▪ Use of chemoprophylaxis by non-immune Project employees and contractors. ▪ Effective case management from EPC Contractor medical services, including: Early diagnosis and treatment, timely referral of complicated cases, adult mosquito control with indoor residual spraying and fogging / space spraying in Project sites, larviciding. ▪ Local workers
<p>[OC- 106] Noise and dust management and monitoring</p>	<ul style="list-style-type: none"> • Review the proposed dust and noise monitoring (permanent set-up during construction) plan prepared by the EPC Contractor to ensure consistency of methodology and analyses, for comparison with baseline and predictions. • Establish a noise, and dust measuring protocol independent from the resources mobilized by the EPC Contractor. Acquire the specialized equipment (sound level meters, hand-held dust disposition monitor) and conduct ad hoc noise level and dust emissions measures during the construction period at the isolated receptors not displaced around i) the regulating dam, ii) the main work area in



	<p>Mpindo, and iii) at the northern boundary of the Majete WR to confirm EPC’s compliance with WHO guidelines and Malawi level regulations.</p> <ul style="list-style-type: none"> Control that no new settlements are developed during the construction activities within the i) 200-m safety buffer zone around the junction at the S137 and the main dam to regulating dam service road, along the main dam to regulating dam service road, and within the main works area and construction worksites, and ii) 500 m buffer around the quarries.
[OC- 107] Night-time construction activities	<ul style="list-style-type: none"> Require EPCs to avoid night-time construction work (where possible) from 22pm to 7am (as defined by the WHO) to limit sleep disturbances for the local residents and any wildlife. Ban blasting activities at night Where night-time activities are required, review the Night-time Work Management Plan (included in the ESHS night work risk assessment) the EPC will develop based on its noise risk assessment and check that: <ul style="list-style-type: none"> Construction activities not allowed at night for safety, quality and noise (e.g. blasting, working at height, earthworks, crushing) reasons are excluded. Haulage operations will be restricted to the construction worksites and the service road. An adequate construction lighting aligned with the lighting strategy and ensuring a safe working environment is provided. Noise Monitoring at sensitive Receptor will be conducted and attenuation measures and/or temporary acoustic barriers are considered where noise levels are predicted to exceed WHO and IFC guidelines. Specific emergency and contingency measures are included with local emergency agencies (police, fire, medical) are informed that night-time activities will be undertaken. Approve the Night-time Work Management Plan Ensure that relevant information about night-time activities is communicated to surrounding communities in Chaswanthaka, Mpindo, Kambalame and Feremu, and with Majete WR.

5.8.3 Management Actions during Operation

5.8.3.1 HEA 1: Planning and Governance

[OO- 42] Community Health Committee	<ul style="list-style-type: none"> Maintain the Community Health Committee with external stakeholders. Maintain and renew, as required, the MoU between the Neno- and Blantyre District Health Management Teams and MHPL Update Community Health Committee on priority action plan and focus areas for the operations period. Prioritize the areas of concern identified by the 2024 ESIA on community health that will receive active support from the Project as listed in the following sections (Health System Strengthening, Communicable Disease, Monitoring, Community Development, WASH). to collaboratively address health impacts across the area of influence.
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5.8.3.2 HEA 2: Health System Strengthening

[OO- 43] Support of District Health Management Teams (DHMT) and Local Health Facilities	<ul style="list-style-type: none"> Continue implementation of the DHMT support priority action plan, as developed during construction and adapt geographic focus, extent of involvement and temporal scale based on: <ul style="list-style-type: none"> Outcomes of longitudinal monitoring, including repeat of capacity assessments as performed during construction. Input from internal and external stakeholder/s Input from relevant technical person/firm (appointed during construction)
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<p>[OO- 44] Support of Local Health Facilities</p>	<ul style="list-style-type: none"> • Continue implementation of local health facilities support priority action plan, as developed during construction and adapt geographic focus, extent of involvement and temporal scale based (as and if required) on: <ul style="list-style-type: none"> ▪ Outcomes of longitudinal monitoring, including repeat of capacity assessments as performed during construction. ▪ Input from internal and external stakeholder/s ▪ Input from relevant technical person/firm (appointed during construction)
<p>[OO- 45] Support of community health worker / Health Surveillance Agent (HSA) programmes</p>	<ul style="list-style-type: none"> • Continue implementation of the HSA support priority action plan, as developed during construction and adapt geographic focus, extent of involvement and temporal scale based on: <ul style="list-style-type: none"> ▪ Outcomes of longitudinal monitoring ▪ Input from internal and external stakeholder/s ▪ Input from relevant technical person/firm (appointed during construction)

5.8.3.3 HEA 3 and 4: Health Support Initiatives in Local Area Development Plan

<p>[OO- 46] Support Community Development Initiatives</p>	<ul style="list-style-type: none"> • Continue implementation of the community health initiatives of the Local Area Development Plan, as developed during construction and adapt geographic focus, extent of involvement and temporal scale based on: <ul style="list-style-type: none"> ▪ Outcomes of longitudinal monitoring. ▪ Input from internal and external stakeholder/s. ▪ Input from relevant technical person/firm (appointed during construction)
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5.8.3.4 HEA 5: Baseline Health Surveys & Monitoring

<p>[OO- 47] Support of Longitudinal Monitoring</p>	<ul style="list-style-type: none"> • Retain the services of a qualified person or firm to perform and/or coordinate longitudinal monitoring of community health indicators, as done during the construction phase. • Continue collection of community health indicators as determined by the outcomes of the BHS and entomological Survey.
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5.9 Community Safety and Security

5.9.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> • Address hazards to communities that may be present around construction worksites, along the S137 and the service road • Address hazards to communities that may be present around and downstream of dams and reservoirs, and along the S137. • Address safety control measures that are employed to protect communities around and downstream of dams and reservoirs, along the S137 and at construction worksites. • Community is related to Communities living in villages potentially exposed to Project’s hazards. • Not included in this plan: <ul style="list-style-type: none"> ▪ Safety practices for EPC Contractor’s workers or other sub-contractors working for MHPL. ▪ Safety issues relating to the EPC contractors’ construction method. ▪ Safety issues relating to the TLs maintenance under Government’s responsibility
Component	<ul style="list-style-type: none"> • CSS1: Engagement of communities on safety and security • CSS2: Community safety and security at Project’s sites • CSS3: Traffic Management and Road Safety • CSS4: Community safety around reservoirs • CSS5: Emergency preparedness plan
Timeframe	<ul style="list-style-type: none"> • CSS1 & 2: Started prior to the start of the Early Works and to be continued throughout the Project’s construction and operational phases. • CSS3: Started prior to the start of the Early Works and to be continued throughout the Project’s construction phase • CSS4: Developed during construction and implemented throughout operational phase. • CSS5: Developed during construction and implemented throughout operational phase.
Responsibility	<ul style="list-style-type: none"> • MHPL
Performance Criteria	<ul style="list-style-type: none"> • CSS1: <ul style="list-style-type: none"> ▪ Availability of an annual community awareness campaign program ▪ Number, topic, location, timing and attendance of community safety awareness activities against expected program ▪ Number, location and timing, attendance of traffic awareness activities ▪ Number, topic, location, timing and attendance of safety school outreach activities against expected program • CSS2: <ul style="list-style-type: none"> ▪ Availability of the local police station ▪ Availability of noise and dust monitoring protocol. ▪ Installation and records of seismographs to monitor reservoir induced seismicity ▪ Availability of additional studies to characterise magnitude and frequency of seismic events and landslide risk assessment. ▪ Project’s grievance redress mechanism operational for the community safety related topics. • CSS3: <ul style="list-style-type: none"> ▪ Availability of the check point at the main dam to regulating dam service road and at other relevant location ▪ No new settlements are developed at sensitive locations



	<ul style="list-style-type: none"> • CSS4: <ul style="list-style-type: none"> ▪ Availability and relevance of the Operational Risk Assessment and Community Safety Plan ▪ Availability of signs, sirens, fences at the right locations on time prior to risk materialisation. ▪ Number of hydro-risk informants mobilised. ▪ Number of dead cattle or other livestock following a peaking phase in the regulating reservoir. ▪ Existence of public dam viewpoints at the main dam bridge.
	<ul style="list-style-type: none"> • CSS5: <ul style="list-style-type: none"> ▪ Availability of a detailed EPP ▪ Effective training and exercises activities for operational staff ▪ Availability of communication systems (e.g., emergency alerts, sirens)

5.9.2 Implementation and Monitoring Actions during Construction

5.9.2.1 CSS 1: Engagement of Communities on Safety and Security

<p>[OC- 108] Education and information: planning awareness campaign</p>	<ul style="list-style-type: none"> • Prior to the start of the Early Works, select priority areas for intervention and awareness campaign for the construction phase, including – but not limited to – traffic safety, access to dangerous construction areas, human-wildlife conflict, and emergency preparedness for construction related accident affecting communities • Identify key receptors (e.g. communities, persons, activities) for each of the priority area identified for intervention and awareness campaign. • Engage local community / community representatives and agree on the most appropriate strategy to best convey safety messages (how and who): Find out (i) how people learn and to whom they listen, (ii) what would motivate the intended audience and what is important to them. • Develop a concise and engaging message that aligns with the objectives. Use language that speaks directly to the targeted audience. • Define, for each of these priority areas, campaign duration and frequency of intervention, and who at MHPL will be in charge of preparing and implementing (e.g. CLO). • Finalise the community awareness campaign program and implement it across chosen channels, monitor engagement, respond to feedback, and adapt as necessary.
<p>[OC- 109] Community awareness for road safety</p>	<ul style="list-style-type: none"> • Identify villages crossed by the S137 on Blantyre and Neno side. • Include local authorities in the awareness campaign. • Develop presentations, and interactive sessions on road safety, responsible driving and speed management, vehicle safety and pedestrian safety. • Start presentations, and interactive sessions at commencement of the Early Works and repeat annually until last year of construction. • Encourage the communities to report any safety concerns promptly, including through the Grievance Redress Mechanism
<p>[OC- 110] Community awareness for access to the Project site and specific risk areas</p>	<ul style="list-style-type: none"> • Construction sites can pose significant risks to the communities. Community awareness helps individuals understand potential hazards and how to avoid them, reducing the likelihood of accidents and injuries. • Educate communities on the dangers of unauthorised entry to dams and Tls construction sites, potentially dangerous equipment and why access restrictions must be respected. • Communicate areas where access is prohibited, including access to the Shire River stretch located in the Main Work area and the main reservoir footprint during the reservoir impoundment. • Develop brochures, flyers and posters that illustrate common construction site hazards, safety tips, authorised access routes and emergency contact information.



	<ul style="list-style-type: none"> Encourage the communities to report any safety concerns promptly, including through the Grievance Redress Mechanism Identify villages and targeted population (i.e. cattle herders) bordering the main works area, the regulating dam work site and the 132kV and 400 kV wayleaves in GVH Kaliati, GVH Namputu, GVH Feremu, GVH Nsalawatha, GVH Ngwenyama, GVH SomiSomi and GVH Imbwa. Include local authorities in the awareness campaign. Start presentations, and interactive sessions at commencement of the Early Works and repeat annually until last year of construction.
[OC- 111] School outreach	<ul style="list-style-type: none"> Identify the schools from villages crossed by the S137 from the airport to the main dam. Organize presentations, and interactive sessions in each of these schools to teach pupils about traffic rules, road signs, pedestrian safety, bicycle safety, and safe school bus behaviour. Increase traffic awareness in villages with a school or playground along the S137 i.e. Mbvundula, Chikumbu, Chisembwere Mbanda, and Chilaulo. Start presentations, and interactive sessions prior to commencement of the Early Works and repeat annually until last year of construction. Identify the schools from villages bordering the main reservoir and regulating reservoir. Organize presentations, and interactive sessions in each of these schools to raise general and specific pupils’ awareness about hazards associated with construction activities and dams’ operation. Start presentations, and interactive sessions at commencement of the Early Works and repeat annually until last year of construction.
[OC- 112] Community awareness for human wildlife conflict	<ul style="list-style-type: none"> Identify villages bordering the main reservoir and regulating reservoir in GVH Kaliati, GVH Namputu, GVH Feremu, GVH Nsalawatha and GVH Ngwenyama. Inform residents of potential increased risk of snake encounters during and immediately after filling, highlight the value of snakes for reducing nuisance pests (e.g. rats), and protocols to be applied (including not killing snakes). Implement signage and distribute brochures to community members at schools, churches, clinics and other community facilities Mobilise and involve the EPC Contractor’s EO in the awareness campaign. Start first presentations, and interactive sessions at least three months prior to reservoir filling and until the reservoir filling stage is completed.
[OC- 113] Engagement on community safety during clearing operations	<ul style="list-style-type: none"> Engage the local community to describe the measures planned by the EPC Contractor as part of the Vegetation Clearing Plan. Present the plan for the establishment of safety buffer zone around felling operations as long as the clearing operations progress: physical delineation on the ground and warning signs, control during cutting operations. Include these messages into the safety briefs provided to schools as part of [OC- 111].

5.9.2.2 CSS 2: Community Safety and Security at Project’s Site

[OC- 114] Vegetation clearing operations at the main work areas and within the transmission line wayleaves	<ul style="list-style-type: none"> Review the vegetation clearing plan and check on site that the main work area, i.e. construction worksites and accommodation camps are physically demarcated on the ground. Local residents are used to walk in the area and collect timber for charcoal. In vegetation clearing operations, tree cutting, falling tree limbs, moving cables, rolling logs, heavy equipment do represent safety hazards for workers first. As the transmission line right of way footprints extend over a large area, access to remote vegetation clearing sites during construction will be more difficult to control and to restrict. Review the safety measures planned by the EPC Contractors to avoid accident during vegetation clearing, and transportation operations.
[OC- 115] Support and work	<ul style="list-style-type: none"> Establish a MoU with the Malawian Police Service to assist the development of new local police station close to the project area to:



<p>with local police and rescue force</p>	<ul style="list-style-type: none"> ▪ improve community safety and security, ▪ address regional security risks (e.g. opportunistic crime, possible kidnap-for-ransom attempts, prostitution, and petty theft) outside the project perimeter during construction and the Project’s operating life, ▪ establish routines such as police patrols and checkpoints to deter potential criminals and ▪ provide additional support for bulk deliveries of equipment and material during in-country transit. <ul style="list-style-type: none"> • Provide support and resource proportionate to the risk, police mandate, and responsibilities to the police. The outcomes of the security and threat assessment undertaken by MHPL will be used to determine the exact project requirements. • Define a procedure to cooperate with local police forces to ensure high standards of integrity and Human Rights compliance. • Train all police force on appropriate conduct, engagement and appropriate use of force, human rights and the Voluntary Principles on Security and Human Rights (see section 5.10 on Human Rights Due Diligence). • Support local traditional structures and related justice systems local traditional structures. • Engage local traditional structures to discuss how to enforce security and avoid theft during the construction works and Project’s operating life. • Train and strengthen local authorities’ capacity and capability to enforce traffic regulations including the regulation of motorcycle and minibus taxis and the number of passengers that they carry, use of protective headgear and over speeding. • Develop an Emergency preparedness for construction related accident affecting communities to be implemented when construction activities start.
<p>[OC- 116] Vibration from blasting</p>	<ul style="list-style-type: none"> • Review the blasting risk assessment carried out by the EPC, as well as the blasting schedule and alert system that will be implemented. • Check consistencies between the blasting risk assessment and the blast design and loading that will be implemented and ensure that no households are located at a distance that could expose them to safety issues and dust. Consider the accommodation camp in the assessment. • Include in the Main Works RAP the households in Kambalame located within 500 meters form the quarries and which could be exposed to dust and rock fly.
<p>[OC- 117] Use of security personnel</p>	<ul style="list-style-type: none"> • Do not arm the Security guards. • Identify the potential impacts of security arrangements on people and communities. • Conduct a human rights audit before recruitment of private security providers. • Train all Security guards on appropriate conduct, engagement and appropriate use of force, human rights and the Voluntary Principles on Security and Human Rights (see section 5.10 on Human Rights Due Diligence).
<p>[OC- 118] Reservoir Triggered Seismicity monitoring post reservoir filling</p>	<ul style="list-style-type: none"> • The impact assessment predicted a low risk of occurrence of reservoir triggered seismicity, using the ICOLD criteria analysis (hydraulic height of the dam lower than 100 m, volume of reservoir water smaller than 500 Mm³). • To confirm this assumption, install seismographs to monitor seismic activities and demonstrate absence of reservoir triggered seismicity during reservoir filling and the first year of operation.
<p>[OO- 48] Implement the Grievance Redress Mechanism for communities</p>	<ul style="list-style-type: none"> • Collect and categorize grievances. • Ensure timely acknowledgment of complaints and track their progress. • Assess the validity of grievances and investigate relevance. • When founded grievance related to dust, noise, traffic and other safety or security issues, require the EPC to propose modifications to their construction methods and/or to implement appropriate mitigation measures if possible



5.9.2.3 CSS 3: Traffic management and Road Safety

[OC- 119] Traffic Management at sensitive locations	<ul style="list-style-type: none"> Identify, map and register sensitive locations along the S137 to be used by the Project trucks and share this information with the EPC Contractor. Locations can be sensitive to traffic for safety reasons (e.g. accidents), or health reasons (e.g. emissions, noise), such as cemeteries, churches, recreational areas, and health centres; Verify that the EPC Contractor installs specific traffic signs and traffic calming measures close to these areas and that speed, noise, and dust abatement measures, and other applicable traffic management measures are effectively and timely implemented throughout the construction period. Traffic management measures can include i) pedestrian crossing facilities maintained at all times and signage (e.g. overpass bridges), ii) speed bumps to slow down vehicles approaching to these areas, iii) circles to slow traffic, iv) flagmen at schools at school start and finish times, v) Improved lighting, and vi) physical barrier along the S137 when lining a recreational area, e.g. football ground. Control that no new settlements are developed during the construction activities within the 200-m safety buffer zone around the junction at the S137 and the main dam to regulating dam service road, and along the main dam to regulating dam service road. Develop, maintain and operate checks points developed in [INF 2: Minimizing Opportunistic In-Migration]. Should MHPL decide to delegate responsibility of managing the checkpoint located on the main dam – regulating dam service road entrance, ensure that the management of the checkpoint complies with the Project Security Plan. Ensure that access by local residents (i.e. Mpindo, Mbwinja villages) served by this road is maintained and that the EPC offers local residents a shuttle bus to the S137 to avoid walking along the service road. If the construction phase of other projects requiring significant road use in the Project area is concurrent with the Project construction, coordinate with local authorities with regard to the use of the roads used by the Project.
[OC- 120] Traffic Monitoring along the S137	<ul style="list-style-type: none"> Monitor traffic volumes and drivers' behaviour along the S137 at regular periods throughout Project construction. The frequency of monitoring will be implemented regularly as proposed below and in consideration of the EPC Contractor's construction schedules and activities to anticipate potential Project traffic peaks, including the nature of Project traffic at defined monitoring locations. More frequent monitoring than those proposed would be undertaken if required based on review of the annual or interim data reports, anticipated or realised traffic peaks, or in response to communities concerns and grievances. Method: Implement the monitoring using on-site observers and automated counts (e.g. pressure hose). Propose monitoring stations at strategic location along the S137 (e.g. Chikuli market). Frequency: to be determined based on the EPC Contractor's construction schedules and activities. In addition to collecting traffic volume data, during construction, report on site observations where a traffic-operation problem has been identified, which resulted in the blockage of the road, or accident

5.9.2.4 CSS 4: Community Safety Around Reservoirs

[OC- 121] Operational Risk Assessment and Community Safety Plan	<ul style="list-style-type: none"> Retain the services of qualified persons to perform an operational risk assessment and prepare a Community Safety Plan to document how MHPL assessed, and will manage, community safety issues resulting from normal operations at each dam site, powerhouses and reservoirs. Perform the operational risk assessment as per the 2011 Canadian Dam Association's Guidelines for Community Safety Around Dams: (i) review of draft operating procedures, (ii) site interviews and stakeholder consultation, (iii) additional hydraulic assessment to simulate which represent worst-case scenario where communities may have interaction upstream and downstream
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	<p>of the dams, (iv) Establish boundaries of site components (reservoir areas, dam structures, powerhouse and tailrace, dewatered reach, regulating dam plunge pool, downstream areas) where hazards are known to be created as direct result of the dams’ operation or their presence, (v) identify existing and potential future community activities within each component, (vi) identify key potential hazards within each component that communities may be exposed, (vii) define control measures, both operational and physical, to mitigate risks specific to each activity identified in step (v), (viii) estimate the maximum reasonable community safety incident likelihood rating for the activity and associated hazards, assign incident consequence rating, determine risk rating and assign risk level.</p> <ul style="list-style-type: none"> • After the risks are assessed in detail, prepare a draft Community Safety Plan and confirm the decisions made during basic design on the most appropriate means to mitigate the risks and further described in [OC- 123] to [OC- 125] management actions below. The draft Community Safety Plan will describe (i) site plans showing hydropower facilities, hazardous zones and physical control measures, (ii) roles and responsibilities, (iii) summary of aforementioned risk rating and supporting studies like the hydraulic assessments, (iv) summary of control measures for the two dam sites and associated reservoirs, (v) operational procedures, (vi) community education initiatives, and (vii) maintenance and monitoring procedures for control measures that are in place. • Include emergency procedure in case of drowning of people or injury or mortality from encounters with large mammals linked to the main reservoir and regulating reservoir operation. • Provide the local authorities and the relevant governmental agencies for review 6 months prior to commissioning of the powerhouses. • Receive and consolidate comments on the draft plan were received from government agencies and consider them in the revision to this plan.
<p>[OC- 122] Design of a safe public viewpoint along the S137 road</p>	<ul style="list-style-type: none"> • Study, design and include in the EPC Contractors’ work at least one public viewpoint from the S137 road close to the main dam. This viewpoint will give road users an opportunity to watch the Mpatamanga Gorge and both reservoirs, from a safe distance and will prevent people from stopping on the dam bridge. It should include the following features: a project viewing area, sign shelter with interpretative content, paved parking for vehicles.
<p>[OC- 123] Warning devices and access restrictions at the main reservoir</p>	<ul style="list-style-type: none"> • Restricted areas on the main reservoir, i.e. two 500m exclusion zones around the main dam facilities and Tedzani tailrace, will be physically demarcated with warning buoys or booms, and signs will also be installed to warn boaters. • Appropriate signage (e.g. using pictographs, non-technical terminology, and be clearly visible) in two languages (local language, English) will be installed around the main reservoir so that people are warn of the dangers and restricted areas. Two categories of signs will be used: warning signs (against potential hazards) and danger signs (for dangerous zones). • Shore-based rescue devices such as ring buoys and rope. Depending on the safety and rescue needs of the area, rescue system that uses an inflatable roll-cage raft to protect people from hydraulic currents may be used. • A regular sign inspection program will be developed to ensure that all signs will be maintained in good condition.
<p>[OC- 124] Warning devices and access restrictions at the regulating reservoir</p>	<ul style="list-style-type: none"> • Fences, together with signs and locked gates, will be installed to prevent communities from accessing to the upper part of the regulating reservoir on Blantyre side. The fenced area will run from the main powerhouse to 1.5km downstream to it and includes the main switchyard. • Audible devices: sirens will be used to inform upcoming peaking at the main powerhouse. The sirens will be effective for the full length of the dangerous areas – at the regulating reservoir MOL at a minimum (to be defined by the Operational Risk Assessment). The siren will be installed at the main dam. • Flashing strobe light will be installed at the main powerhouse to inform upcoming peaking. • Appropriate signage (e.g. using pictographs, non-technical terminology, and be clearly visible) in two languages (local language, English) will be installed along the fence and the regulating reservoir shoreline on Blantyre side and Neno side so that people are warn of the dangers and restricted areas. Two categories of



	<p>signs will be used: warning signs (against potential hazards) and danger signs (for dangerous zones).</p> <ul style="list-style-type: none"> • Ensure that public access restriction to the Shire River reach in the main works areas is properly enforced by the EPC Contractor. Ensure that the river reach down to the regulating dam is maintained for confirmed residents living along the route. • A regular sign inspection program will be developed to ensure that all signs will be maintained in good condition
[OC- 125] Operating procedures and practices	<ul style="list-style-type: none"> • If the Operational Risk Assessment (see [OC- 125]) concludes into a risk for water users or community upstream of the main dam due to increased risk of flooding during reservoir filling or downstream of the main dam and regulating dam due to sudden release that cannot be effectively mitigated through education / information, warning and access restrictions, Project operating procedures will be adapted to improve safety conditions.
[OC- 126] Access to the main reservoir during reservoir filling	<ul style="list-style-type: none"> • Prohibit community access to the Shire River within the main reservoir footprint during the reservoir impoundment. • Install warning signs in villages located close to the main reservoir;
[OC- 127] Permanent Hydro-meteorological monitoring system upstream of the Main Dam	<ul style="list-style-type: none"> • Implement a permanent hydro-meteorological monitoring system upstream of the main dam to anticipate floods and manage the reservoir level and associated spillage in manner which is safe for the downstream communities. • The defined monitoring requirements are for both the reservoir filling period as well as for during operation

5.9.2.5 CSS 5: Emergency Preparedness Plan

[OC- 128] Appoint an Independent Panel of Experts for dam safety	<ul style="list-style-type: none"> • Appoint an Independent Panel of Experts for dam safety. • The panel will be required to review the design and all aspects of the work, including reservoir management, erosion, flood and seismology
[OC- 129] Develop the Emergency Preparedness Plan document for the operation	<ul style="list-style-type: none"> • Review the dam break analysis and the preliminary EPP prepared as part of the 2024 Detailed Design. • Determine and identify conditions that represent emergency situations for the 2 dams. The conditions are to include those that indicate an imminent emergency situation or result in significant changes in releases or outflows from dams during floods (e.g. rising water levels, structural issues). • Develop inundation maps showing areas that may have to be evacuated in a event emergency. • Determine the response actions to be taken and by whom under what circumstances. • Discuss and align these response actions for potential emergency with the Tedzani and Kapichira HPP procedures, and other relevant stakeholders. • Identify response actions to be taken by dam personnel in response to potential emergencies or significant changes in releases or outflows from dams during floods. • Identify any necessary resources, special tools, equipment, keys and indicate where they can be located if required in an emergency. • List and prioritise all persons and entities (including contact details) involved in the notification process and the roles and responsibilities assigned to them (a flow chart will be used) • Identify primary and secondary communication systems, both internal (between persons at the dam) and external (between dam personnel and outside entities or persons) • Consult with all parties (including emergency management agencies if any) included in the notification list, to review the draft EPP. Make any necessary revisions as a result of consultation process.



	<ul style="list-style-type: none"> Disseminate the EPP to those who have responsibilities under the EPP. The mapping of the areas potentially inundated by a dam break will be communicated to the Local Emergency Management and Local Responders for inclusion in their Emergency Planning documents, and a summary of the EPP will be disclosed to the local communities.
[OC- 130] Develop Warning System for Emergency Event	<ul style="list-style-type: none"> Specify, procure and install at key locations warning systems recommended in the EPP such as sirens, warning signs across/along access to/the Shire River. Opt for electronic sirens that are easy to integrate into the warning infrastructure, reliable, and low-maintenance. These sirens should operate for many years without issues. Backup power sources (such as batteries) are essential for uninterrupted operation during emergencies. Document the process.

5.9.3 Implementation and Monitoring Actions during Operation

5.9.3.1 CSS1: Engagement of Communities on Safety and Security

[OO- 49] Education and information: planning awareness campaign	<ul style="list-style-type: none"> During the last year of construction, update priority areas for intervention and awareness campaign for the operational phase, including – but not limited to - traffic safety, access to reservoirs and dams’ operation, electrical hazards, human-wildlife conflict, emergency preparedness planning. Update key receptors (e.g. communities, persons, activities) for each of the priority area identified for intervention and awareness campaign. Confirm with local community / community representatives that the previously defined strategy to best convey safety messages is still appropriate. If not, update the strategy and find out (i) how people learn and to whom they listen, (ii) what would motivate the intended audience and what is important to them. Develop/update a concise and engaging message that aligns with the objectives. Use language that speaks directly to the targeted audience. Define/update, for each of these priority areas, campaign duration and frequency of intervention, and who at MHPL will be in charge of preparing and implementing (e.g. CLO). Update the community awareness campaign program for the operational phase and implement it across chosen channels, monitor engagement, respond to feedback, and adapt as necessary.
[OO- 50] Community awareness for road safety	<ul style="list-style-type: none"> Update list of villages crossed by the S137 on Blantyre and Neno side. Include local authorities in the awareness campaign. Update presentations, and interactive sessions to include the use of dam bridge. Start updated presentations, and interactive sessions one year prior the start of the main dam and dam bridge operation and repeat annually during operational phase during the first five years of operational phase. Annual sessions extended if deemed necessary
[OO- 51] Community awareness for dams’ operation	<ul style="list-style-type: none"> Update villages and targeted water users (i.e. ranches, fishers, herders, pirogue, drivers) bordering the main reservoir and regulating reservoir in GVH Kaliati, GVH Namputu, GVH Feremu, GVH Nsalawatha and GVH Ngwenyama. Include local authorities in the awareness campaign. Structure the community awareness into three components: <ul style="list-style-type: none"> General awareness raising about hazards associated with dams. It will be addressed through generic advertising strategies, which include broadcast media messages, brochures, posters and other educational materials directed to target audience in GVH Kaliati, GVH Namputu, GVH Feremu, GVH Nsalawatha and GVH Ngwenyama. Specific education regarding the hazards associated with the peaking program and the areas around the main dam and regulating dam intake and spillways, the upper part of the regulating reservoir, and the regulating reservoir itself; and Proposed safety measures relating to i) the restricted areas in the main reservoir, ii) the ban on access to the upstream part of the regulating reservoir, iii) the access to the regulating reservoir margin only, and iv) the pre-peaking warning signs.



	<ul style="list-style-type: none"> • Include in the community awareness materials the results of the operational risk assessment made during construction (see [OC- 121]) with the latest version of information. • Develop presentations, and interactive sessions one year prior to the start of dam’s operation and repeat annually during the first five years of operational phase. Annual sessions extended if deemed necessary.
[OO- 52] Community awareness for electrical hazards from dams and TL’s operation	<ul style="list-style-type: none"> • Identify villages locating close to the main switchyard and regulating dam switchyard and bordering the 132kV and 400 kV wayleaves in GVH Kaliati, GVH Namputu, GVH Feremu, GVH Nsalawatha, GVH Ngwenyama, GVH SomiSomi and GVH Imbwa. • Include local authorities in the awareness campaign. • Educate communities on the dangers of unauthorised entry to the dam facilities, climbing on TLs tower, potentially dangerous equipment and why access restrictions must be respected. • Develop brochures, flyers and posters that illustrate common electrical hazards from switchyards and TLs, authorised access routes and emergency contact information. • Encourage communities to report any safety concerns promptly. • Start updated presentations, and interactive sessions one year prior to the start of dams’ and TLs’ operation and repeat annually during the first five years of operational phase. Annual sessions extended if deemed necessary.
[OO- 53] Community awareness for human wildlife conflict	<ul style="list-style-type: none"> • Identify villages bordering and farmers or herders practicing their activities nearby the main reservoir in GVH Kaliati, GVH Namputu, GVH Feremu, GVH Nsalawatha and GVH Ngwenyama. • Inform residents of potential increased risk of human-wildlife conflicts with hippo and crocodiles that they may enter adjacent farm fields and cause damage to crops • Mobilise and involve the EPC Contractor’s EO in the awareness campaign. • Develop material, and interactive sessions and start first presentations one year prior to the start of dam’s operation.
[OO- 54] School outreach	<ul style="list-style-type: none"> • Update the list of schools from villages crossed by the S137 from the airport to the main dam. • Update presentations, and interactive sessions used during construction phase to make it relevant for the operational phase and the potential new socio-economical context. • Organise presentation in each of these schools to teach pupils about traffic rules, road signs, pedestrian safety, bicycle safety, and safe school bus behaviour in order to longer develop a long-term safe driving behaviour. • Increase traffic awareness in villages with a school or playground along the S137 such as – but not limited to - Mbvundula, Chikumbu, Chisembwere Mbanda, and Chilaulo. • Start updated presentations, and interactive sessions one year prior the start of dams’ operation and repeat annually during the first five years of operational phase. Annual sessions extended if deemed necessary. • Update the list of schools from villages bordering the main reservoir and regulating reservoir and include schools from villages locating along the 400kV and 132 KV. • Organize presentations, and interactive sessions in each of these schools to raise general and specific pupils’ awareness about hazards associated with electrical hazards and to inform and refresh local people regarding restriction zone requirements (see [OO- 52] and [OO- 51]), including quarries. • Start presentations, and interactive sessions one year prior the start of dams’ and TLs’ operation. • Update the list of schools from villages bordering the main reservoir.



	<ul style="list-style-type: none"> Organize presentations, and interactive sessions in each of these schools to raise general and specific pupils' awareness about the risks from wildlife (see [OO- 53]). Start updated presentations, and interactive sessions one year prior the start of dams' operation and repeat annually during the first five years of operational phase. Annual sessions extended if deemed necessary.
[OO- 55] Community awareness for emergency preparedness	<ul style="list-style-type: none"> Identify villages at risk downstream the regulating dam. Implement the community awareness campaigns, including at schools, on emergency preparedness planning (see [OO- 65]) to share information that is vital for timely warnings and evacuation routes. Adapt the presentation material to reflect potential updates to the EPP. Start first presentations, and interactive sessions the first year of dams' operation and repeat annually.

5.9.3.2 CSS 2: Community Safety and Security at Project's Sites

[OO- 56] Collaboration with local police	<ul style="list-style-type: none"> Continue working with the local police as defined in the MoU established in construction phase. Provide support for the collection and collation of data at the local and district level on road traffic accidents to evaluate trends in incidents and use this information to direct actions to risk areas or risk groups.
[OO- 57] Access control at project's site	<ul style="list-style-type: none"> Maintain access control to the main dam-regulating dam service road. Ensure that access by local residents (i.e. Mpindo, Mbwinja villages) served by this road will be maintained. Fences and barricades, together with signs and locked gates, will be installed to prevent communities from accessing to hazardous areas, such as dams, powerhouses, substations, as well as wing walls where the side slopes present a hazard. Check that the final layout of the permanent fence on the Blantyre Side (left-bank fence) resulting from the operational risk assessment made during construction is implemented, and ensure that i) the upper part of the regulating reservoir, ii) the reach downstream the regulating dam up to Majete WR, and iii) the energy production facilities, i.e. main powerhouse, main switchyard, regulating dam switchyard and powerhouse are appropriately fenced off. Recruit and mobilise a licenced security contractor to control access to these areas.

5.9.3.3 CSS 4: Community Safety Around Reservoirs

[OO- 58] Mobilisation of hydro-risk informants	<ul style="list-style-type: none"> During the first 3 years of operation recruit, train and field hydro-informants (e.g. students). They will patrol along the regulating reservoir shore, between the fence and the regulating dam, to inform/warn people against the risk associated with reservoir operation. At the conclusion of this initial period, examine the relevance of extending the approach for the next years.
[OO- 59] Warning devices, access to reservoir and permitted viewpoints at the main reservoir	<ul style="list-style-type: none"> Implement and document regular sign inspection program to ensure that <ul style="list-style-type: none"> onshore warning signs and shore-based rescue devices installed around the main reservoir are maintained in good condition. safety buoys installed upstream of the main dam and near the Tedzani tailrace are maintained in good condition. Inspect signs monthly and after severe weather or flood conditions.
[OO- 60] Access control and warning devices at the regulating reservoir	<ul style="list-style-type: none"> Control that the ban to the upper part of the regulating reservoir on Blantyre side is implemented and followed. Deploy and post uniformed guards and watchmen along the main dam-main powerhouse fence to police the area and to enforce regulations, warning signs and fences and minimize trespassing access to the upper part of the regulating reservoir on Blantyre side.



	<ul style="list-style-type: none"> • Ensure that safe access (e.g. ramps and watering points) to the permitted regulating reservoir margin area for community and livestock are used, operational and well maintained. • Implement and document regular sign inspection program to ensure that all warning signs and fences installed along the regulating reservoir shore on Blantyre side are maintained in good condition. • Inspect signs on a monthly basis and after severe weather or flood conditions. • Coordinate with the Conservation Area Manager on signs and fences status along the Conservancy area on Neno side (see section 5.12).
[OO- 61] Operating procedures and practices	<ul style="list-style-type: none"> • Implement the spillage and hydropeaking operating procedures and practices defined as a result of the operational risk assessment made during construction. • Review operating procedures every year as and if they may affect community safety and propose any necessary improvements, consistent with good community safety practices and the primary purposes of the Project.
[OO- 62] Coordination with stakeholders and communication on timing releases	<ul style="list-style-type: none"> • Draw up a list of stakeholders who need to be informed of the water release schedule. • Develop a communication program to inform stakeholders of planned regular events and communicate exceptional events (emergencies) as early as possible. • Notify ranches located on the Neno side of the regulating reservoir of any major changes in peaking program, flow and water levels in advance to ensure cattle are kept out of the area.

5.9.3.4 CSS 5: Emergency Preparedness Plan

[OO- 63] Reviewing the EPP	<ul style="list-style-type: none"> • Every year: Update all references and contact details to relevant entities in the EPP, amend the EPP to address (i) relevant legislative amendments, (ii) new communication channels for timely alerts and notifications, (iii) deficiencies identified in the EPP up to that time or to improve the efficiency and the effectiveness of the EPP. • Once reviewed, MHPL will give the relevant authorities a notice stating whether or not MHPL proposes an amendment of the plan because of the review; and if MHPL proposes an amendment, a copy of the plan including the proposed amendment
[OO- 64] Training and exercise	<ul style="list-style-type: none"> • Implement the annual training activities included in the EPP for the operational staff at dams and powerhouses in the incident management process, including detection, evaluation, notification, and appropriate response actions during all emergency level determinations. • Ensure a sufficient number of people are trained to ensure adequate coverage at all times. • Implement the exercise programme proposed in the EPP at least every 5 years. • Test emergency sirens and associated communication channels on a quarterly basis.
[OO- 65] Community awareness campaigns on emergency preparedness planning	<ul style="list-style-type: none"> • Every year, implement the community awareness measures that are proposed in the EPP with identified populations and local community representatives to explain the proximity of the dam, how people will be informed in case of an emergency, and the actions people should take during an emergency. • This exercise will also focus on operation-related risks and will be an opportunity for people to report near misses in order to help improve the safety around the hydropower installations.
[OO- 66] Emergency event reporting	<ul style="list-style-type: none"> • Prepare an emergency event report and submitted to local authorities within 30 business days after the end of an event. An emergency event ends (i) if the event is a dam failure that has happened, when MHPL reasonably considers the hazard no longer poses a risk to the dam; or (ii) if the event is an emergency downstream release that has happened, when MHPL reasonably considers the hazard no longer poses a risk to the safety of persons or property.



5.10 Human Rights Due Diligence

MHPL has prepared a Human Rights Assessment of the Mpatamanga HPP, as part of its human rights’ due diligence process. This Assessment will inform the development of policies and procedures to integrate human rights within the Project’s management system.

To inform this Due Diligence process, MHPL has already engaged several stakeholders through the following activities:

- A workshop with local Civil Society Organizations involved in human rights: on 26 March 2024 which included Youth Net and Counselling, National Initiative for Civic Education and Wildlife and Environmental Society of Malawi; and
- Another online Workshop with national Civil Society Organizations involved in human rights on 27 March 2024, with Human Rights Defenders Coalition, Neno Active Youth in Development, World University of Canada, Centre for Human Rights and Rehabilitation, Youth for Environment and Sustainable Development, Women for Fair Development, Community Action for Sustainable Development Organization, Malawi Environmental Endowment Trust, Neno Civil Society Network, and Youth Action for Environmental Management;
- MHPL also performed a survey amongst workers employed by one of their contractors during 2023.

MHPL Human Rights strategy will include the following activities and commitments:

<p>[OC- 131] Human Rights Assessment and HR Policy</p>	<ul style="list-style-type: none"> • MHPL will finalise its Human Rights Assessment and develop a Human Rights policy as a stand-alone document and disclose it publicly on its website • Human rights will be integrated into MHPL procurement processes, through the integration of human rights requirements in various corporate documents (Code of Conduct, other E&S policies when applicable) and in the tender documents for the selection of the EPC contractors • The protection of activists and human rights defenders will be organized and guaranteed by MHPL
<p>[OC- 132] Training and capacity building on Human Rights</p>	<ul style="list-style-type: none"> • MHPL will provide support in preparing the training material for security guards • Training material on human rights and labour rights will be prepared and direct employees from MHPL and contractors will be trained on them • GoM staff and agencies involved in the implementation of the environmental and social mitigation measures of the Project will be trained by MHPL on Human Rights
<p>[OC- 133] Integration of Human Rights into the Grievance Redress Mechanism</p>	<ul style="list-style-type: none"> • Human Rights risks and issues will be integrated into the Project Stakeholder Engagement process • In the Project Grievance Redress Mechanism, protocols for human rights related incident response, including protecting the confidentiality of complainants, investigating allegations thoroughly, and taking appropriate action to address and prevent further incidents will be defined



5.11 Gender-Action Plan

5.11.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> As per the International Labour Organisation (ILO, 2019) the term “gender-based violence and harassment” means violence and harassment directed at persons because of their sex or gender, or affecting persons of a particular sex or gender disproportionately, and includes sexual harassment. According to the World Bank (World Bank, 2018), Gender-Based Violence (GBV) is an umbrella term for any harmful act that is perpetrated against a person’s will and that is based on socially ascribed gender differences. The term GBV stems from the 1993 United Nations Declaration on the Elimination of Violence against Women, which defined violence against women as ‘any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women’. Gender-Based Violence and Harassment (GBVH) risks are transversal to many of the Project activities: workforce management, interaction between the local communities and the workforce, effect of the Project-related land acquisition and compensation, access to employment opportunities or Project benefits, management of impacts on Cultural Heritage. Several sub-plans of this ESMMP include measures to avoid or mitigate gender-related risks, including but not limited to GBVH. Responsibilities of the implementation of these measures are distributed between the Project parties (EPC, their subcontractors, Project workers, MHPL, GoM). GBVH risks are both ‘inside and outside the fence’: they occur inside the Project construction and operation sites, but they also occur outside of them, in the local communities around the Project, because of the Project activities or influence on the local socioeconomic conditions. MHPL recognises that the Project can help prevent GBVH from happening in the first place and enable appropriate action to mitigate the impact when it does, including through support to survivors. The Objective of this GBVH sub-plan is to define the Project pro-active approach to prevent and manage GBVH risks, consolidated across all Project activities and parties, and ensure it is applied consistently to all Project parties.
Component	<p>Three components form the present plan:</p> <ul style="list-style-type: none"> GAP.1- Gender Mainstreaming in Other sub-plans GAP.2- GBVH Prevention and Management Systems Preparation GAP.3- GBVH Prevention and Management Systems Implementation
Timeframe	<p>The three components will be implemented during the detailed design stage, the main construction period and operation</p>
Responsibility	<ul style="list-style-type: none"> MHPL as the Employer, with delegation to the Owners Engineer as the Employer’s Representative in charge of works supervision.
Performance Criteria	<p>GAP1.- Gender Mainstreaming in Other Plans</p> <ul style="list-style-type: none"> Gender activities included and implemented in other sub-plans Monthly reports of monitoring activities include Gender indicators on these activities <p>GAP.2- GBVH Prevention and Management Systems Preparation</p> <ul style="list-style-type: none"> GBVH service provider recruited before start of construction MHPL GBVH policies and procedures are defined, available and implemented before the start of construction / updated before start of commercial operation. Measures to support and collaborate with local Victims Support units are defined and implemented. GBVH reporting and resolution system are defined and operational before the start of construction and updated before the start of operation (separate channel in the Workers Grievance mechanism and the Community Grievance Mechanism, responses procedures in place, necessary resources and monitoring are defined)



	<p>GAP.3- GBVH Prevention and Management Systems Implementation</p> <ul style="list-style-type: none"> • GBVH prevention and resolution resources are mobilised from the start of construction/operation and throughout construction/operation (GBVH service provider staff). • Minutes of meetings and attendance sheets of Community Outreach Programme and GBVH trainings • Number of GBVH cases reported, resolved and monitored.
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5.11.2 Implementation and Monitoring Actions during Construction

5.11.2.1 GAP 1: Gender Mainstreaming in Other Plans

Gender-related risks have been identified in the 2024 ESIA. They are issues cross-cutting a number of topics. As such, a number of gender-specific measures have been defined in various sections of the ESIA. They are listed below for the construction period, and will be implemented as part of other sub-plans of this ESMMP.

<p>[OC- 134] Gender-related measures in the RAPs</p>	<ul style="list-style-type: none"> • The 2024 Resettlement Policy Framework (RPF) defines measures to address gender-specific risks during the preparation and implementation of the phased RPF: these measures will be implemented to mitigate the risks on women’s land tenure and livelihood security during the compensation, resettlement and livelihood restoration process. These gender-specific measures from the RPF are summarised below: <ul style="list-style-type: none"> • During the Public Disclosure of the Draft RPF: <ul style="list-style-type: none"> ▪ Representatives of the women affected and of vulnerable groups will be included in the working groups of the first tier RWG (group village level) in the main reservoir and main works areas, ▪ Female-led and women only focus groups will be organised in the settlements affected by physical displacement (Kambalame, Chaswanthaka and Mpindo) to ensure women concerns regarding physical displacement and in-kind compensation options are collected and considered. • During the preparation of the Phased RAP: <ul style="list-style-type: none"> ▪ Female-led and women only focus groups will be organised during the socioeconomic survey to collect women concerns about involuntary resettlement impacts, ▪ Representatives of the women affected will be included in the Working groups of the first tier RWG (group village level) for the 400kV and 132kV transmission line and the S137 road, ▪ During the consultations with the first tier RWG at the group village level, women-only meetings will be organised to present the entitlement matrix, livelihood restoration measures and compensation process. • During the implementation of the Phased RAP: <ul style="list-style-type: none"> ▪ To ensure women participate in the compensation process and are aware of the compensation provided to the households, the individual disclosure of the compensation packages will be done during one meeting with both spouses and all adults members of the households (including daughters and sons). ▪ The Project will ensure that both spouses are informed of the household’s entitlements, compensation amount and payment process during individual meetings ▪ It will be offered to affected households to establish compensation agreements in the names of both spouses or heads of household. ▪ Training on the sustainable management of received compensation will be provided to affected households. This training will include women-only sessions, as well as sessions where both spouses will participate together.
<p>[OC- 135] Gender measures related</p>	<ul style="list-style-type: none"> • Ensure that the DoMM investigations on cultural heritage will be gender-inclusive and gender sensitive, and will identify of gender differentiated element



to Cultural Heritage	of cultural heritage affected (for instance graveyards for young infants managed by mothers only).
[OC- 136] Women empowerment and access to Project benefit	<ul style="list-style-type: none"> As part of the Local Area Development Plan during construction, develop activities to empower women and young girls to improve their economic resilience and make them less vulnerable to sexual exploitation and potentially gender based violence As part of the Local Area Development Plan during construction, MHPL will capacitate local women into social groupings to address gender-based violence, work with local authorities in preventative aspects, and support the creation of 'safe-houses' where victims of domestic abuse can be cared for, with links to the public health services so survivors can receive required medical support
[OC- 137] Management of GBVH by EPC and Supply Chain	<ul style="list-style-type: none"> Ensure all relevant GBVH prevention measures included in the ESIA and ESMP are cascaded onto the EPC and their contractors and supply chain. Require MHPL service provider to train all contractor's workers, supervisors and managers on GBVH. These trainings will be undertaken at least once prior to the commencement of works as well as quarterly as refresher training throughout construction. The training will include: <ul style="list-style-type: none"> Definition of GBVH, how to identify GBVH cases and how the project can exacerbate GBVH risks. National legislation and project commitments on GBVH. Project's GBVH prevention and reporting systems and sanctions for GBVH-related breaches. Cultural sensitisation on respectful engagement with local communities. Control that the EPC recruitment strategies are gender sensitive and are implemented in a gender-sensitive manner. Control that the EPC Contractors Occupational Health and Safety Management measures include GBVH aspects: <ul style="list-style-type: none"> gender-separate accommodation on camp and gender-separate lockable latrines and WASH facilities that are well-lit, conveniently located and easily accessible, workers' safety committee which will include at least one trained female worker representative, all women workers have access to properly designed and fitted PPE Control the Workers Grievances Mechanism include a separate Channel for GBVH reporting Control the gender-desegregation by EPC of their monitoring of E&S, occupational, health and safety and labour management performance

5.11.2.2 GAP 2: GBVH Prevention and Management Systems Preparation

[OC- 138] Policies	<ul style="list-style-type: none"> MHPL will recruit a GBVH service provider to prepare systems and procedures to prevent GBVH, manage potential cases of GBVH, and provide support to survivors. The systems and procedures will be developed in alignment with GIIP, and with the good practices for the Private Sector recommended by the IFC (IFC et al., 2020). Using the assessment of GBVH risks in the 2024 ESIA, the GBVH service provider will perform an in-depth GBVH risks assessment, identifying the gaps and weaknesses in MHPL, the GoM PIU, and the EPC to prevent and respond to GBVH. The GBVH service provider will establish processes and procedures, or modify existing ones as needed. MHPL policies to be developed or modified will include, as a minimum: <ul style="list-style-type: none"> MHPL Human Resources Policy to include non-discrimination and equal opportunities provisions MHPL Code of Conduct signed by the top management will include a no-tolerance policy towards harassment. Induction process to include sensitisation about GBVH and MHPL zero-tolerance policy towards harassment.
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	<ul style="list-style-type: none"> ▪ Internal training on GBVH MHPL policies to be provided to all workers of all grades, including contractors and security personnel. ▪ Ways to cascade MHPL policies requirements on GBVH onto the contractors, including Health and Safety audits of construction facilities and operations, workers accommodation and transportation (workplace safety assessments)
<p>[OC- 139] Integration with existing GBVH systems 'out of the fence'</p>	<ul style="list-style-type: none"> • To define the GBVH systems and procedures, and as part of its detailed assessment, the GBVH service provider will meet with: <ul style="list-style-type: none"> ▪ Victim Support Units in Blantyre, Neno and Balaka Districts, ▪ Community Victim Supports Units in the Group Villages where construction activities will occur, ▪ Other entities involved in GBVH cases reporting, referral and management, as appropriate • The GBVH service provider will assess the Victims Units GBVH cases reporting systems, their protection of survivors, how there are handling and/or referring cases, and identify if, where and how the Project GBVH procedures can integrate into the existing community-level and District level GBVH systems. The legal requirements will also be considered. • As part of the Project GBVH systems, define measures to support the local Victims Support Unit as appropriate, as well as a collaboration protocol. • The GBVH service providers will then draft a protocol defining the distribution of responsibilities between the Victims Support Units, the GoM PIU, MHPL and the EPC. • Once approved by the GoM PIU and MHPL, the protocol will be integrated into MHPL and the Project systems.
<p>[OC- 140] GBVH Reporting system</p>	<ul style="list-style-type: none"> • The GBVH service provider will establish and/or incorporate GBVH reporting into the Project Grievance Redress Mechanism and investigations procedures. This will include: <ul style="list-style-type: none"> ▪ Defining a separate channel in the Worker's Grievance Mechanism and the Community Grievance Mechanism to handle GBVH complaints and store them in a separate database, ▪ Procedure to assign the GBVH-related investigations to staff dedicated to this task (either the GBVH service provider staff or MHPL staff trained to do this) • In conformity with the World Bank's Good Practice Note on GBV (World Bank, 2018), the GBVH Incident Reporting and Response Mechanism will abide by the following principles: <ul style="list-style-type: none"> ▪ Complete confidentiality of the survivor will be ensured. ▪ Grievances will be received and handled by a GBV service provider who can be seen as trustworthy and unbiased by survivors. ▪ Women from the affected communities and the communities in the vicinity of the construction activities will be trained on the principles and functioning of the Reporting and Response Mechanism and they will be provided with tools on how to recognise and report cases of GBVH. ▪ All GBVH-related grievances will be resolved in a timely manner, in order to minimise the trauma of the survivor.
<p>[OC- 141] GBVH Response</p>	<ul style="list-style-type: none"> • The GBVH Response procedure will ensure that data is safely collected, stored and analysed when cases are reported. In particular, the Project will be: <ul style="list-style-type: none"> ▪ Protecting the data of all survivors and sharing it only in the context of a referral, with the prior informed consent of the survivor. ▪ Anonymising survivor data when sharing it with any non-GBVH organisation or agency involved in the Project. ▪ Never sharing the details of the survivor and / or the complainant with the perpetrator. • The GBVH Service Provider will define culturally appropriate Psychosocial first aid to be offered to the survivors • The responses procedures to be developed by the GBVH service provider will be adopt a survivor-centred approach. Procedures may vary according to the type of GBVH cases, but will at least include the following:



	<ul style="list-style-type: none"> • Medical support for the survivor, including immediate referral of the survivor to a healthcare provider. • Legal advice for the survivor, including support for reporting the incident to the police if the survivor wishes to do so. • A sanction for the perpetrator. • Cases of GBVH will be reported to the police according to the legal framework of Malawi.
[OC- 142] GBVH Monitoring	<ul style="list-style-type: none"> • Define a monitoring system for MHPL to monitor the resolution of all GBVH cases reported separately from the other monitoring processes
[OC- 143] GBVH Resources	<ul style="list-style-type: none"> • Define resources to be mobilised for the implementation of the GBVH procedures

5.11.2.3 GAP 3: GBVH Prevention and Management Systems Implementation

[OC- 144] Mobilisation of Resources	<ul style="list-style-type: none"> • Mobilise the resources to implement the GBVH prevention, reporting and resolution procedures ahead of the start of construction activities and for the duration of construction activities (GBVH service provider to be mobilised on site, medical staff as required)
[OC- 145] Communicate the GBVH processes	<ul style="list-style-type: none"> • In each village neighbouring the construction activities, at least one month before the start of construction activities, introduce the GBVH service provider staff members to be present on site, and to the local communities. • In each village affected by the land acquisition process, before the start of the census and inventory of affected assets, introduce the GBVH service provider staff members to be present on site, and to the local communities • Train the Group Village Grievance Redress Committees on the GBVH processes and on potential gender-related risks for the compensation process (such as land grabbing by men or misuse of households’ compensation by men) • Prepare and implement a Community Outreach Programme on GBVH, to disclose the Project’s GBVH protocols and reporting processes
[OC- 146] Implement GBVH Prevention and Reporting systems	<ul style="list-style-type: none"> • Implement and monitor the reporting, resolution and monitoring of GBVH incidents.

5.11.3 Implementation and Monitoring Actions during Operation

5.11.3.1 GAP 1: Gender Mainstreaming in Other Plans

Gender-related risks have been identified in the 2024 ESIA. They are issues cross cutting a number of topics. As such, a number of gender-specific measures have been defined in various sections of the ESIA. For the operation period, these measures are related to the Local Area Development Plan.

[OO- 67] Women empowerment and access to Project benefit	<ul style="list-style-type: none"> • As part of the Local Area Development Plan during operation, develop activities to empower women and young girls to improve their economic resilience and make them less vulnerable to sexual exploitation and potentially gender based violence • As part of the Local Area Development Plan during operation, MHPL will capacitate local women into social groupings to address gender-based violence, work with local authorities in preventative aspects, and support the creation of ‘safe-houses’ where victims of domestic abuse can be cared for, with links to the public health services so survivors can receive required medical support
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5.11.3.2 GAP 2: GBVH Prevention and Management Systems Preparation

<p>[OO- 68] Update of the GBVH procedures for Operation</p>	<ul style="list-style-type: none"> • Before the start of commercial operation, update and adapt the GBVH prevention and reporting system for the operation period: <ul style="list-style-type: none"> - Adapt the human resources to be mobilised to the operation activities, - Adapt the GBVH risk assessment for operation (reduced number of workers compared to construction), - Document lessons learnt from the construction phase • Update the collaboration with local Victim Support Units as appropriate for operation. • Maintain policies and zero-tolerance commitment defined for construction throughout operation
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5.11.3.3 GAP 3: GBVH Prevention and Management Systems Implementation

<p>[OO- 69] Communicate the GBVH processes for operation</p>	<ul style="list-style-type: none"> • In each village neighbouring the operation activities (Group Village Kaliati in Blantyre Districts and Group Village Feremu in Neno District), perform a round of community meetings to introduce the updated GBVH processes for operation.
<p>[OO- 70] Implement GBVH Prevention and Reporting systems</p>	<ul style="list-style-type: none"> • In each village around the main reservoir, perform a round of community meetings to introduce the updated GBVH processes for operation. • Implement and monitor the reporting, resolution and monitoring of GBVH incidents.



5.12 Biodiversity

The biodiversity measures described below are specifically those related to on-site and off-site mitigation and monitoring measures that fall under the overall responsibility of MHPL to implement. The off-site mitigation (avoidance and minimisation) and offset actions are summarised from the separate Biodiversity Action Plan (BAP) (TBC 2024), and will be further detailed in a future Biodiversity Offset Management and Implementation Plan (BOMIP) and Biodiversity Monitoring and Evaluation Plan (BMEP).

5.12.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> • Avoid and minimise project-induced influx related risks of poaching and illegal logging in Majete WR • Minimise risk of wildlife mortality from project infrastructure and activities, and human-wildlife conflicts, and to monitor, record, and manage wildlife incidents. • Avoid impacts by protecting remaining portions of natural aquatic and terrestrial habitat (and associated species) in the project-affected area from increased pressure on natural resources due to project-induced influx through improving security measures around Majete WR, and creating a biodiversity conservancy area. • Undertake conservation actions (offsets) to meet no net loss commitments for impacts on natural terrestrial and aquatic habitats, and net gain for critical habitat qualifying species, with monitoring for assessing effectiveness and progress to achieve gains. • Manage and monitor alien invasive terrestrial and aquatic plant species that may proliferate in the project-affected area. • Minimise and monitor and minimise collision and electrocution risks to threatened birds on the two project transmission lines.
Component	Construction: <ul style="list-style-type: none"> • BIO 1: On-site Biodiversity Mitigation and Monitoring • BIO 2: Off-site Biodiversity Mitigation and Offset Actions (BAP)
Timeframe	<ul style="list-style-type: none"> • All off-site and on-site components will commence from construction with actions continuing through operations. • Selected aquatic monitoring actions will commence pre-construction to improve baseline data.
Responsibility	<ul style="list-style-type: none"> • All components fall under the responsibility of MHPL. • Selected monitoring measures will require external support from consultants and/or institutions e.g. Department of Fisheries and Department of National Parks and Wildlife (DNPW). • Measures related to improved protection of Majete WR will require a partnership agreement with Majete Wildlife Reserve management / staff and/or Department of National Parks and Wildlife (DNPW). • Off-site tasks such as the management of the biodiversity conservancy area (Neno District), and improved protection of the Elephant Marsh Ramsar site will be delegated to third party organisations or institutions with consultant support and capacity building. Prospective organisations and institutions have been consulted and have confirmed their willingness to participate, including DNPW, African Parks, and the Wildlife and Environmental Society of Malawi (WESM).
Performance Criteria	BIO 1: Biodiversity Mitigation and Monitoring <ul style="list-style-type: none"> • No significant increase in encroachment incidents in Majete Wildlife Reserve for illegal logging or animal poaching, or any loss of priority biodiversity feature specie attributed to project-induced influx • No incidents of wildlife mortality from stranding or drowning during reservoir filling or operation, or from faunal movement out of reservoirs (e.g. snakes) or from Majete WR into the regulating dam construction area.



	<ul style="list-style-type: none"> Monitoring of rehabilitation and remedial measures implemented where necessary, with reports demonstrating natural vegetation succession with limited intervention required. Effective monitoring of alien invasive plants and control measures implemented with records showing no significant new Project-related outbreaks of alien spread. Aquatic monitoring shows limited to no significant adverse effects on the downstream river system in Majete WR to Kapichira HPP, and preferably a trend in aquatic habitat and fish improvement over time. Bird fatality / carcass monitoring conducted with no records or evidence of transmission line collision or electrocution with highly threatened raptors/vultures.
	<p>BIO 2. Off-site Biodiversity Mitigation and Offset Actions (BAP)</p> <ul style="list-style-type: none"> No increase of human encroachment incidents into <u>Majete WR</u>, e.g number of snares found or evidence of increased hunting or illegal logging, or deliberate fires No incidents of poaching of black rhino or other priority biodiversity species within Majete WR. Proposed <u>biodiversity conservancy</u> successfully established and under management by a suitably qualified and competent conservation entity (e.g. WESM with support of the Majete Reserve managers). Sufficient funding will be allocated, and there will be community involvement and support including through environmental awareness programmes. The biodiversity conservancy demonstrates gains to achieve no net loss of natural terrestrial habitats through unassisted restoration and is managed to support the introduction of native herbivorous mammals and other (non-dangerous) wildlife. Successful expansion of <u>community conservation areas</u> in the Elephant Marsh Ramsar site as per the existing Elephant Marsh Management Plan leading to sustainable management of fishing, hunting and agricultural pressures and diversification of livelihoods with net biodiversity gains for priority biodiversity features and the wetland habitat. Implementation of species-specific conservation and awareness actions for vultures, rhino and pangolin leading to reduction in threats and improved protection.

5.12.2 Implementation and Monitoring Actions during Construction

Note: reservoir management and monitoring measures related to fisheries, alien fish and plant monitoring are covered under Section 5.14. Measures below cover biodiversity measures related to wildlife management and non-reservoir related monitoring and management actions.

5.12.2.1 BIO 1: On-site Biodiversity Mitigation and Monitoring

<p>[OC- 147] Appointment and roles of Biodiversity Staff</p>	<ul style="list-style-type: none"> Appoint suitably qualified Biodiversity Specialist/s to oversee EPC contractor responsibilities for implementation of biodiversity management and monitoring requirements. This includes management of external consultants with related biodiversity responsibilities, engagement with government conservation stakeholders, and participation in biodiversity steering committee meetings. Biodiversity specialist/s to verify that relevant biodiversity-related provisions required of the EPC contractors are respected. This includes ensuring security personnel undertake routine inspections of vehicles and staff bags to check for prohibited products; that contractors adhere to environmental induction and code of conducts; adhere to required measures to minimise risk of alien invasive plant spread, ensuring vegetation clearance is limited to demarcated areas (especially in natural habitats such as the quarry on Neno side); that buffer zones along streams are respected, that contractors comply with top soil and restoration requirements and abide by vehicle speed limits. The biodiversity specialists will also ensure and independently validate the contractor's
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	<p>monitoring requirements, and check results are within the specifications or if remedial actions are required.</p> <ul style="list-style-type: none"> • Biodiversity specialist to prepare training materials and provide biodiversity-related training to relevant MHPL and contractor staff. • Biodiversity specialist to manage biodiversity data, mapping, reporting and trackers (together with MHPL's GIS and document control specialists).
[OC- 148] Biodiversity Steering Committee to oversee biodiversity actions	<ul style="list-style-type: none"> • Establish a biodiversity steering committee with representatives of MHPL, DNPW, and other relevant agencies and stakeholders (to be agreed). The committee should meet regularly (as agreed) to engage and confirm aspects of mutual interest related to biodiversity monitoring results and protection measures, including access for security patrols and management of wildlife incidents. • Record minutes of all meetings and actions agreed within one week and share with the committee representatives for comment and revision.
[OC- 149] Wildlife Tracker for Incident Reporting	<ul style="list-style-type: none"> • Develop a Wildlife Tracker to record all project-related incidents related to sightings or encounters with wildlife. This should include incidents related to rescue or drowning of wildlife in project areas and camps, roadkill (e.g. snakes and other animals) and encounters with community members. • Information included in the tracker should include date of occurrence, named location, GPS location, person reporting the incident, description of incident, photograph, identification of species involved, person confirming identification.
[OC- 150] Wildlife traffic incident reduction	<ul style="list-style-type: none"> • Install signage and implement speed control and law enforcement measures for road safety and to reduce collision risks to wildlife, especially along S137 and main dam to regulating dam road. • Conduct regular checks of road users entering and leaving the area north and east of Majete boundary to check for wildlife or harvested resources. • Implement a mechanism to verify road users who are local residents to ensure no public throughflow of traffic on the main dam to regulating dam access road.
[OC- 151] Wildlife Monitoring During Fence Installation	<ul style="list-style-type: none"> • Conduct an onsite investigation with Majete WR management to confirm and agree fence alignment and gate requirements and location around the regulating dam infrastructure adjacent to the reserve to facilitate animal rescue / escape and security patrols to improve Majete WR security. • Compile a memo confirming the agreed fence routing, design and gate locations and obtained written agreement with Majete WR managers and DNPW. • Deploy armed rangers during fence installation to patrol the area and flush out any animals that could become trapped towards Majete WR or adjacent ranches. Fencing should be constructed starting from the regulating dam and moving down towards the Majete fence on both sides to facilitate animal movement out of the area.
[OC-152] Wildlife Monitoring During Reservoir Filling	<ul style="list-style-type: none"> • Notify Majete WR management and DNPW at least three weeks in advance of the due date for dam closure and reservoir filling and inform them of possible risks to the reserve and any precautions to be taken to protect wildlife and human safety. • In the day before reservoir filling is due to commence, deploy qualified field rangers on either side of the regulating reservoir to conduct a walk-through survey to check for presence of any animals that may be subject to drowning during reservoir filling. This will include checking and recording the location of any burrows of any medium sized animals that may be impacted to enable a repeat check and observations during the filling process. • During the 3 to 5-day period of reservoir filling deploy the same four rangers to monitor the reservoir for any animals that may become stranded and need assistance. The rangers will record any incidents or observed presence of hippos, crocodiles, buck or other animal in the area (with GPS and photographs) and will notify DNPW or Majete WR management if additional assistance is required for animal rescue. • Record all incidents and sightings of notable wildlife in the wildlife tracker.



<p>[OC- 153] Restrictions and monitoring public use of Project roads</p>	<ul style="list-style-type: none"> • Ensure Project access roads built for construction are not used for public access to minimise risk of increased harvesting and poaching in and around Majete WR. Security checkpoints must be maintained at all entry and exit points to monitor use. • Work with traffic authorities, police and Majete WR security to undertake spot checks of road users to search for timber, charcoal and wildlife products that may have been collected/poached from Majete WR or surrounding lands. • Note: some local residents may need to use project access roads so a system to verify legitimate users is required. • Record all incidents of poaching or transport of illegal natural resources in the wildlife tracker.
<p>[OC- 154] Right of use of Regulating Dam for security patrols</p>	<ul style="list-style-type: none"> • Confirm the timing and mechanism of providing safe road access across the Shire River at the regulating dam to allow use by DNPW and Majete WR security staff for patrols. • Schedule the construction of the regulating dam to expedite (where possible) the use of the coffer dam and regulating dam by Majete WR security staff.
<p>[OC- 155] Woodland mitigation during resettlement</p>	<ul style="list-style-type: none"> • Design the resettlement planning process to ensure that allocation of land to resettled communities optimises retention of woodland patches and encourages community protection.
<p>[OC- 156] Routine surveillance of natural resource use</p>	<ul style="list-style-type: none"> • Appoint an Environmental Officer (EO) to work to regularly inspect drainage lines and woodlands for snares and to be observant of staff involvement in hunting or purchase of bushmeat, and to record incidents in a wildlife tracker.
<p>[OC- 157] Community awareness raising of human wildlife conflicts (e.g. snakes)</p>	<ul style="list-style-type: none"> • Inform residents living close to reservoirs of potential for increased risks from wildlife, actions to take and number to call for assistance. This could relate to snakes moving away from reservoir filling, encounters with hippos and crocodiles and wildlife escapes from Majete WR. • Appoint trained snake handlers for at least one to be on site permanently to handle snake incidents and catch and release snakes into Majete WR or the conservancy area. • Monitor incidences of snake and other wildlife encounters and record in wildlife tracker. • Note: potential conflicts with hippos and crocs are covered under the Reservoir Management Plan.
<p>[OC- 158] Additional ecological investigations in Lower Shire</p>	<ul style="list-style-type: none"> • As per Section 5.7 (Downstream Floodplain), conduct further investigations on downstream floodplain habitats and ecosystem services aligned with examination of hydrological and sediment parameters to inform development of a monitoring plan and mitigation strategy.



5.12.2.2 BIO 2: Off-site Biodiversity Management (BAP)

The off-site biodiversity management measures are further detailed in the 2024 BAP and in the future Biodiversity Monitoring and Evaluation Plan (BMEP) and Biodiversity Offset Implementation and Management Plan (BOIMP) (still to be developed). The BMEP will include specific measurable metrics for each mitigation action and ecological indicator, and provide for adaptive management of mitigation and offset actions to achieve the overall no net loss and net gain outcome.

The actions below summarise the key provisions of the off-site offset measures contained in the BAP.

A Improved Security Protection for Majete Wildlife Reserve

This measure is elaborated in the Biodiversity Action Plan and has been agreed based on discussions with Majete WR management and DNPW on the mitigation measures that are required to effectively minimise risks from project-related influx on the northern and eastern boundary of the reserve. The actions presented below are provisional pending further planning with Majete WR, and would commence with planning during pre-construction with implementation through construction and operations.

The measures proposed here will be additionally supported through the other measures the Project will implement to manage human-in-migration risks including traffic control points at strategic road access locations (see Section 5.6). The creation of a biodiversity conservancy adjacent to a portion of the northern boundary of the Majete WR on the Neno District side of the regulating dam (see next section) will also improve security along this section of the reserve boundary.

<p>[OC- 159] Negotiation and agreement with Majete WR on Security Improvements</p>	<ul style="list-style-type: none"> • MHPL to hold further discussions and agreement with Majete WR management to confirm the improved security protection measures, costs and financing options prior to construction. These measures currently include the following: <ul style="list-style-type: none"> - Construction of a new ranger outpost on northern boundary of Majete WR. - Training and equipment for rangers - Road and upgrades to / along northern perimeter fence, • MHPL to make funds available for Majete WR to initiate the security improvements and ensure operational prior to mobilisation of contractors for main works construction. • MHPL to document the agreed commitments in a MoU to serve as a written agreement with Majete WR after project financial close. This will include the requirements for reporting on implementation of the actions and any security or poaching incidents.
<p>[OC- 160] Establish New Ranger Camp with Staff and Equipment</p>	<p>Support to Majete WR to improve security surveillance in the northern part of the Majete WR through:</p> <ul style="list-style-type: none"> • Establish a new ranger camp on northern Majete WR boundary with facilities. This is likely to require four houses, solar power and water pump, borehole, water tank, office and strong room. • Deploy and train security staff to conduct patrols along boundary fence. Each outpost requires 8 rangers, a camp leader and one deputy trained in patrol techniques and use of Earthranger software. • Undertake routine fence maintenance along eastern and northern boundary. • Provide sufficient ranger equipment for patrols (e.g. clothing, communication / walkie talkies; geolocation devices to record incidents, EarthRanger software, etc. • Rangers to record daily patrols including number of patrols and kilometres walked/driven; and the date and location of fence breaks, snares, poaching incidents, and other evidence of human presence / encroachment, and actions taken.
<p>[OC- 161] Improved road</p>	<p>Support to Majete WR to improve road access for security patrols, which will be done by:</p>



access for security patrols	<ul style="list-style-type: none"> Constructing an additional bridge crossing to access northern boundary fence. This will include a concrete low water bridge across the Mkulumadzi River to access the northern triangle of the reserve between Mkulumadzi and Shire River (which currently takes 5-6 hours to access). Maintaining tracks and creating new tracks to improve access in northern Majete WR where necessary.
[OC- 162] Improved Fire Management	<p>Support Majete WR to improve its fire management capability including:</p> <ul style="list-style-type: none"> Develop and maintain firebreaks around northeastern section of the reserve (to prevent potential spread of fire from human influx near its boundary) Conduct prescribed burns within Majete WR, and Purchase firefighting and safety equipment.
[OC- 163] Reporting	<ul style="list-style-type: none"> Majete WR to provide six monthly progress reports, annual reporting and annual operating plan with budget to MHPL as a basis for annual release of funds for the next phase of activities. Annual operating plans will be developed sufficiently prior to year-end for approval by MHPL Executive Committee to ensure continued implementation of security measures.

B Development of a Biodiversity Conservancy Area in Neno District (West Bank of Regulating Reservoir)

The Project has identified a 2000 ha portion of land located between the main dam and regulating reservoir in the Neno District to be acquired by the Project for avoidance of impacts from project-related influx and as a terrestrial biodiversity offset to achieve no net loss for impacts on natural terrestrial habitat (see Figure 5-3). The Project will impact an estimated 1,000 ha of natural woodland habitat which has been quantified in the residual impact assessment (TBC, 2024b) to equate to 391 Quality hectares. The proposed biodiversity conservancy contains portions of natural undifferentiated woodland and riparian habitat with some protected tree species much of which is in good condition and is likely to restore naturally under minimal management intervention. Undifferentiated woodland has been categorised as Endangered in the draft Malawi redlist of ecosystems (EAD&NUST 2022). The proposed biodiversity conservancy is contiguous with Majete WR and would improve protection of its northern boundary between the Shire and Mkulumadzi Rivers against human encroachment and poaching risks.

The proposed area for the conservancy is currently used by an estimated 5-6 landowners, mainly for cattle farming, with the northern portion under conservation by one private owner - a portion of which is to be acquired for dam construction. The western boundary of the conservancy will be confirmed based on more detailed analysis of land ownership boundaries (through the Project Resettlement Action Plan (RAP) process), road access, and topography, including stream crossings and rocky outcrops.

Project disclosure meetings with district authorities, village leaders and community members in July 2024 has presented the concept for the conservancy, but no formal consultation with landowners has yet been undertaken. Since portions of this conservancy area is required for the regulating dam, the process of land acquisition will be done as part of the RAP, scheduled to commence in 2025. More detailed landowner engagement has not been undertaken in advance of Project financial close to avoid raising expectations and land speculation.

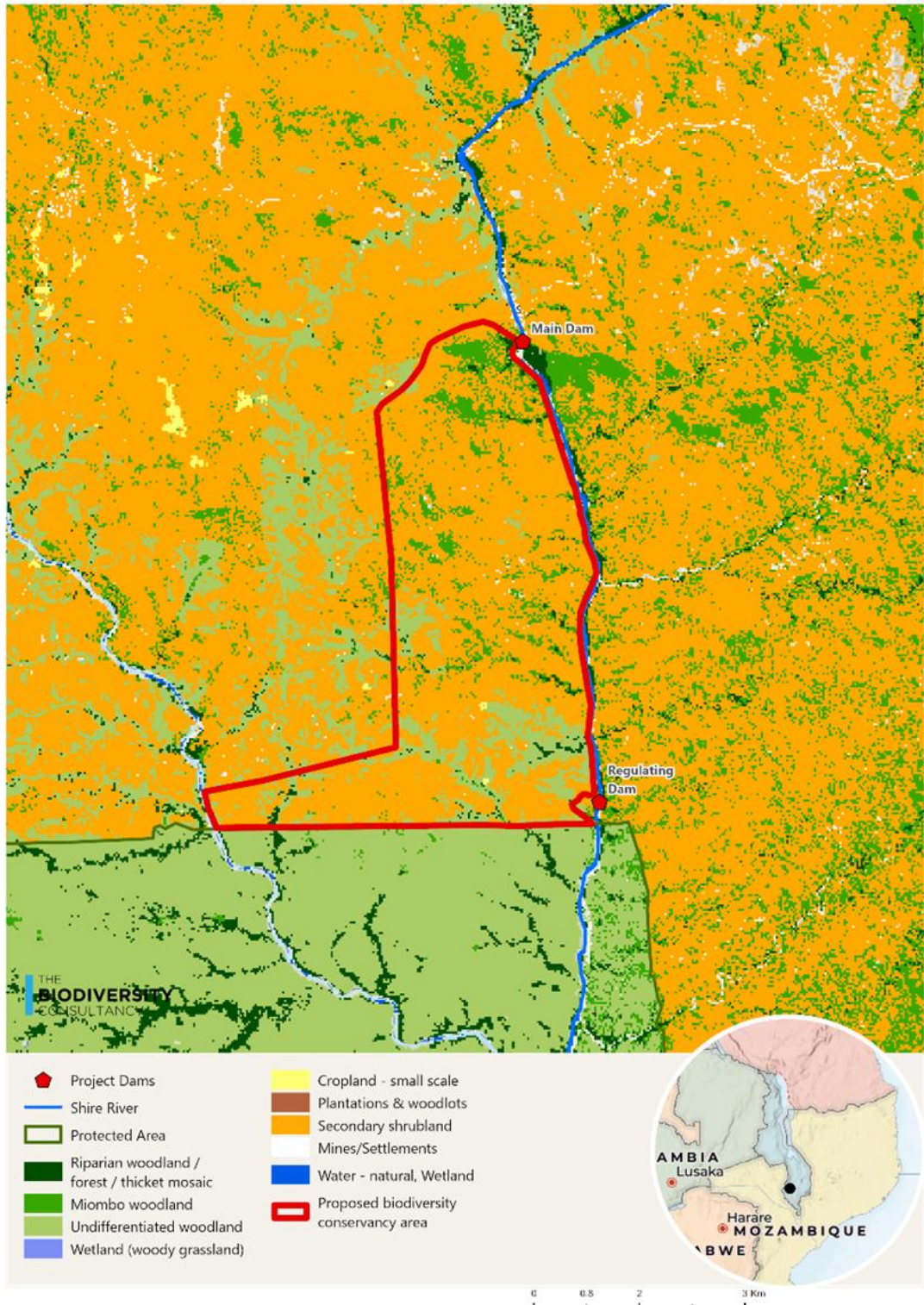
The Wildlife and Environmental Society of Malawi (WESM), an NGO established 75 years ago, has confirmed that its Board of Trustees (following a meeting on 19 July 2024) have confirmed their interest and willingness to take on the management of the biodiversity conservancy and to serve as a base for its operations. This followed a receipt of a letter from MHPL to WESM that set out that the Project would acquire and fence the area in 2026 coinciding with the start of construction of the main works. The main objectives for the conservancy stated in the letter are to manage the area and ensure it delivers the required biodiversity gains for terrestrial natural habitats over the 30-year period of MHPL ownership of the Mpatamanga Project. A robust exit strategy will be needed to guide the handover of the conservancy to the Government of Malawi



after this period. The letter set out the proposed activities for the conservancy including habitat protection, restoration and enhancement, an education centre focussed on nature and biodiversity conservation; biodiversity friendly livelihood activities with local communities in the surrounding area (e.g. bee keeping and sustainable woodlots), introduction of indigenous herbivores, and opportunities for long term monitoring and research with Malawi universities. The letter indicated that other stakeholders who would be involved would include the Forestry Department, the Department of National Parks and Wildlife and the managers of the Majete Wildlife Reserve who are conjoined neighbours with the proposed biodiversity conservancy. The letter acknowledged that WESM would need to hire suitably skilled staff to take the conservancy forward with the support of the Offsets Manager at MHPL.



Figure 5-3: Boundary of the Proposed Biodiversity Conservancy (2000 ha) between Main Dam and Regulating Dam





The actions below set out the conceptual next steps to be taken to confirm the conservancy boundaries and management.

<p>[OC- 164] Confirm and plan implementation arrangements with suitable partners</p>	<ul style="list-style-type: none"> • Obtain signed board approval of WESM to confirm in principle agreement to manage the biodiversity conservancy. • Hold discussions with relevant government institutions (e.g. Department of Forestry, DNPW) to confirm legal arrangements governing establishment and operation of a conservancy. • Hold detailed discussions with WESM and other implementing or supporting partners to plan and agree on the actions, roles and responsibilities (including job descriptions), timelines and costs for implementation, and document these in a conservancy implementation plan. • Develop and agree on a Memorandum of Understanding between MHPL and WESM setting out the agreed actions, responsibilities, financial provisions and timelines.
<p>[OC- 165] Engage with landowners and arrange land expropriation and compensation</p>	<ul style="list-style-type: none"> • Identify potentially affected landowners and determine and map land ownership boundaries (to be used to guide finalisation of the conservancy boundary). • Verify existing land tenure and ownership of all land portions within and adjacent to the conservancy and create a database of these properties. • Engage landowners on the proposed conservancy and inform them of the process, basis and timing of land acquisition (as part of the Project RAP process). • Implement the RAP process and livelihood support measures for the affected landowners. Note: this could include employment of some owners or their staff for the conservancy.
<p>[OC- 166] Demarcate and fence conservancy boundary</p>	<ul style="list-style-type: none"> • Demarcate and fence the conservancy boundary prior to commencement of construction to prevent access of job-seekers/influx and loss of woodland habitats. This will be done as part of the RAP process. • Implement interim security measures to prevent illegal access where required should certain land clearance be required prior to completion of RAP process and fencing (e.g. if road access required for early works). • Regularly monitor and maintain fencing (as required) and record any areas of fence breaks, causes and actions taken.
<p>[OC- 167] Construct and monitor wildlife water points in side channels of Regulating Reservoir</p>	<ul style="list-style-type: none"> • Investigate and confirm locations for suitable animal watering points in the conservancy. • Construct animal watering points (e.g. small weirs) in suitable side channels of the regulating reservoir where daily full supply levels can replenish water. This will reduce the need for animals to drink at the reservoir edge where they could potentially become stranded. • Weirs should be designed with fish protection (e.g. grill) to minimise risk of fish entering the weirs and becoming stranded as water levels lower. • Monitor the effectiveness of weirs during early operation and adapt design as required.
<p>[OC- 168] Conduct a Biodiversity Inventory</p>	<ul style="list-style-type: none"> • Conduct an inventory of the biodiversity assets in the conservancy including assessment of vegetation cover and condition as a basis for monitoring biodiversity gains over time. • Vegetation type and condition should be mapped at sufficient detail including location of protected trees. Vegetation plots shall be established in representative habitats for ongoing surveys to monitor restoration success. • The inventory should include surveys for vegetation/flora and fauna (birds, mammals, herpetofauna) in different parts of the conservancy. • The results of the inventory shall be used to inform the Biodiversity Monitoring and Evaluation Plan (BMEP) which shall serve as the basis for the method and reporting to track progress against defined indicators and thresholds needed to demonstrate gains, as well as identify adaptive management actions that may be required.



<p>[OC- 169] Develop a Conservancy Management Plan</p>	<ul style="list-style-type: none"> • The implementing partner (WESM) will develop a conservancy management plan which shall have input from DNPW, Majete WR and MHPL's Biodiversity Offset Manager to ensure alignment with regulatory requirements and operational procedures in Majete WR and biodiversity offset reporting. • The conservancy management plan will define the vision for the conservancy, the planned activities to be taken with their timelines and responsibilities, staffing arrangements, including implementation and roll out of recruitment, training, educational awareness, community outreach measures and involvement of researchers and students. • The conservancy management plan will be updated at least every 5 years or possibly more frequently in the first 10 years of establishment.
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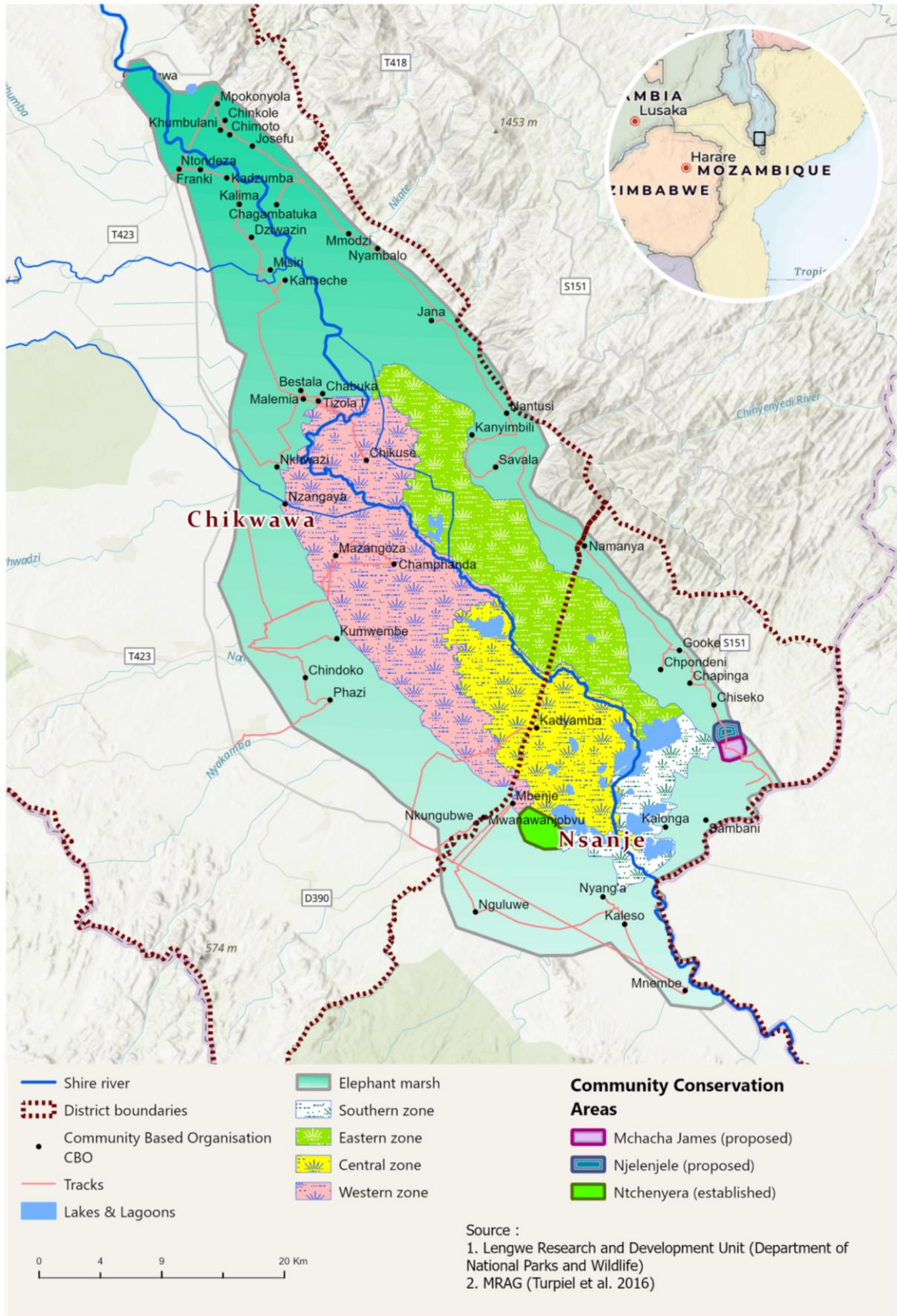
C Elephant Marsh Community Conservation Areas

The Elephant Marsh Ramsar site – a large floodplain and wetland system covering 615 km² in the Lower Shire – has been identified for the aquatic biodiversity offset to compensate for the Project's impacts on the Middle Shire River system. The Elephant Marsh has a draft management plan which is due to be finalised soon and which is based on the development and management of a Community Conservation Area comprising multiple small CCAs focussed on biodiversity hotspot areas (see Figure 5-4). To date, at least one CCA has been established with two others in development with support from the Shire Valley Transformation Project (SVTP) with World Bank funding. However, additional funding and support is needed to extend implementation of the CCA concept, implement conservation activities and get biodiversity monitoring underway.

This aquatic offset option has been disclosed to stakeholders during the ESIA disclosure process and discussed at a separate meeting held with DNPW regional staff at Lengwe headquarters in July 2024 where options and activities for further investment were shared. Meetings were also held with the Ntchenyera CCA (next to Kaombe Ranch in the southern Elephant Marsh) and regional institutional staff from the Department of Fisheries (DOFi) and DNPW to understand the current activities and how the CCA operates. A meeting with the SVTP management (including the wetlands expert) to discuss their investments and activities in Elephant Marsh was also held in July 2024 to understand where an MHPL offset programme would be additional to what is currently being done, and how activities are being implemented. Additional meetings are planned with DNPW in the coming weeks to discuss both the terrestrial and aquatic offset options and implications and to further validate their support. Additional focussed meetings will be required with other institutions to obtain further information on ongoing initiatives and to better understand how they fit together and the key gaps for intervention. Meetings with target CCA communities will be needed to confirm their involvement, which could include coordinated engagement with other active CCA members to showcase the concept and activities involved.



Figure 5-4: Map showing the three CCAs proposed and established in the Elephant Marsh



[Source: Modified from DNPW]



The following actions presented below will be refined during further feasibility investigations.

<p>[OC- 170] Feasibility confirmation study</p>	<ul style="list-style-type: none"> • Conduct a feasibility confirmation study for the Elephant Marsh CCA to identify target areas for CCA development and intervention and obtain stakeholder buy in. This will involve: <ul style="list-style-type: none"> ▪ Mapping of potential CCA locations, sizes and communities and status of existing CCAs ▪ Conduct further investigations on existing initiatives underway in the Elephant Marsh; identify key gaps in protection measures, threats to successful CCA establishment, and prioritise areas and activities for intervention to demonstrate additionality for further investment. ▪ Identify one or more CCAs for focussed intervention where additional biodiversity gains to aquatic habitat and biota protection can be obtained and can justify that the offset can achieve an improved outcome in the Elephant Marsh than the Middle Shire (i.e. 'like for better'). This should include assessment of land tenure and ownership; specific threats to CCA establishment and biodiversity interventions; and possible potential biodiversity gains that can be achieved. • Present the proposed identified suite of offset actions for the Elephant Marsh that the project will fund, and obtain input and consensus from relevant conservation stakeholders (DOFi, DNPW, SVTP) • Identify the target communities and engage them on the CCA concept and their willingness to participate in CCA development and obtain their input on specific risks, threats and concerns. • Develop a plan and protocols for community negotiation and role of mediators during engagements as well as defining the role and level of involvement of existing DoFi/DNPW staff. • Confirm implementation partners for the CCA and potential role and requirement for external agents (besides DoFi / DNPW) and develop an MoU with MHPL. This could potentially include WESM if they have or can build sufficient capacity. The MoU will define the roles and responsibilities of the involved organisations and institutions and how they will engage to implement the Elephant Marsh offset.
<p>[OC- 171] Create a CCA and develop a CCA management plan</p>	<ul style="list-style-type: none"> • A CCA management plan will need to be developed for the selected CCA based on the investigations and agreements reached in the preceding actions. The CCA implementation plan will need to be compiled in alignment with the overarching Elephant Marsh Management Plan and should include: <ul style="list-style-type: none"> ▪ Stakeholder mapping and action plan for ongoing community and stakeholder engagement ▪ Mapping of the CCA boundary and zoning with agreed restrictions ▪ Definition of the CCA structure with roles and responsibilities, and training / skills development needs. ▪ Activities and monitoring measures to be undertaken by respective CCA members, government institutions and the implementing agency (e.g. WESM), and responsibilities for managing and sharing data. This includes how the data will be analysed to meet the BMEP requirements. ▪ Reporting requirements which will include monitoring data and reports, biannual progress reports and annual reports to be provided to the MHPL Executive Committee to track progress and as a basis for funding release. • Updates and revision to the management plan will need to be done at least every 5 years or possibly more frequently in the initial 10 years of establishment.
<p>[OC- 172] Registration of the CCA</p>	<ul style="list-style-type: none"> • The CCA once agreed with all relevant stakeholders will need to be registered and declared.



D Additional Conservation Actions

Supporting conservation actions are described in the BAP and summarised below.

<p>[OC- 173] Vulture Protection Measures</p>	<ul style="list-style-type: none"> • MHPL will sponsor a national Red List workshop with key stakeholders in Malawi to assess vultures and other threatened birds to complete Red List assessments • MHPL will fund and provide support to develop the Malawi Vulture Action Plan • MHPL will provide financial support for additional vulture protection measures that may include tagging and tracking vultures, vulture research and awareness raising workshops on use of poisons and impacts on vultures by Lilongwe Wildlife Trust • MHPL will sponsor the preparation of a vulture contingency plan to be implemented in the event that the fatality monitoring along the project transmission lines shows that vultures are being impacted from collisions or electrocution
<p>[OC- 174] Pangolin Protection Measures</p>	<ul style="list-style-type: none"> • MHPL will fund education awareness regarding pangolins in the overall mission of the conservancy and will include pangolin monitoring in the conservancy monitoring programme (including of those that may be released into the conservancy).
<p>[OC- 175] Rhino Conservation Measures</p>	<ul style="list-style-type: none"> • MHPL will sponsor the preparation of a black rhino contingency plan to be implemented in the event of a project-related fatality event at Majete WR. • MHPL may consider additional rhino conservation measures if required to demonstrate a net gain in the future.
<p>[OC- 176] Masters Research Programme</p>	<ul style="list-style-type: none"> • MHPL will support two post-graduate (Masters level) students per year in ecology studies, covering their tuition fees for their research year, and a bursary towards research costs. • An MoU will be developed between MHPL and MUST to outline agreed activities and roles and responsibilities to define how they will engage to support MSc research programmes. • Candidates will be identified through MUST and other institutions. • MUST will provide research manuscripts and publications to MHPL for funded projects.

5.12.3 Implementation and Monitoring Actions during Operation

Many of the components described below will be implemented mainly during the operational phase but require planning starting during the construction phase.

5.12.3.1 BIO 1: On-site Biodiversity Mitigation and Monitoring

Note: monitoring of reservoir fish and aquatic weeds is covered in Section 5.14 (Reservoir Management). Note: monitoring of fish, aquatic plants and bilharzia host snails in the reservoir is covered under Reservoir Management.

<p>[OO- 71] Wildlife monitoring in Reservoir</p>	<ul style="list-style-type: none"> • Conduct monitoring of wildlife use and stranding incidents in the regulating reservoir for the first two years and continued if incidents are reported in the second year • Monitor and record potential establishment of hippos and crocs in the main dam and regulating reservoirs • Report any wildlife incidents and request assistance for wildlife rescue from relevant organisation. • Identify any high risk areas (wildlife 'hotspots') that may require additional mitigation, where feasible. • Record any incidents in wildlife tracker
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<p>[OO- 72] Site Rehabilitation Monitoring</p>	<ul style="list-style-type: none"> • Conduct monthly monitoring of the success of vegetation restoration on temporary construction sites following EPC demobilisation and after the end of post-construction liability phase. This shall include checks on extent of bare ground and cover by indigenous species; erosion, and alien invasive species presence. Monitoring shall be performed at all construction sites including quarries, rock and soil stockpiles and shall align with alien invasive plant monitoring. • Select specific monitoring site locations for repeat visits, take GPS- site photographs and compile a brief site report confirming the status of restoration. Photographs shall be logged and stored for each site/area in dated folders to allow comparison and visual demonstration of site rehabilitation. • Implement additional site remediation measures at sites where natural restoration of indigenous vegetation has not been successful and/or is unlikely to occur naturally. This may include removal of alien invasive plants, filling erosion gullies, installing silt trap fences, and planting of indigenous trees, shrubs or seeding with grasses.
<p>[OO- 73] Alien Invasive Terrestrial Plant Monitoring</p>	<ul style="list-style-type: none"> • Compile an alien invasive plant field identification guide to assist on-site ecology officers with plant recognition and understanding of suitable control measures. Note: this should be compiled for use during construction by the EPC contractor. • Compile an alien species management plan that outlines the timing and schedule for alien plant monitoring in different parts of the project area, measures to be taken, resources (equipment and staff) required, responsibility, and reporting requirements. • Conduct monthly monitoring of alien invasive terrestrial plants across different parts of the project construction footprints to verify the status (presence, abundance, maturity/seeding/flowering condition). Site to be monitored include project access roads (particularly new access created for the project; quarries, topsoil stockpile site, construction camps and laydown areas). • Train the alien clearing team to identify alien species and use of control methods, selection, application, handling and storage of herbicides, cleaning and maintenance of equipment and record keeping. • Conduct quarterly monitoring of alien invasive plant spread downstream of the regulating dam in Majete WR or alternatively provide financial support and other resources to Majete WR to conduct their own monitoring and control. Preferred options to support Majete WR to be discussed and agreed. • Implement control measures to remove alien plants before plants flower and set seed or can become fully established. Methods include hand pulling or digging to uproot plants, and judicious use of herbicides for cut stump or bark treatment when established. • Maintain a record or log of occurrence of alien plant infestations and corrective actions taken (including date, location name and geolocation, person/s responsible, actions taken).
<p>[OO - 74] Aquatic Biomonitoring</p>	<ul style="list-style-type: none"> • Compile a detailed aquatic biomonitoring plan aligned with monitoring requirements for hydrology, water quality, sedimentation, and those to be defined for the CIA. • Undertake biannual aquatic monitoring at selected river and reservoir locations covering diatoms, macroinvertebrates, fish, instream and riparian vegetation and Index of Habitat Integrity (IHI). • Select survey sites on the Shire River and immediately adjacent tributaries (Mkulumadzi and Lisungwe) which will coincide with previously sampled sites for the ESIA and/or CIA. These should extend between a control site upstream of Nkula HPP and down to at least the Mwanza River (to be determined based on CIA monitoring recommendations). • Adopt the same monitoring methods used during previous surveys for the ESIA which include diatom sampling; SASS sweep netting; electrofishing; crab netting and night lighting (where possible); site photographs, IHI records and noting presence of algae, and obvious habitat condition changes. Observations



	<p>will be recorded on pre-defined data sheets. Consideration should be given to use of drones for monitoring aquatic habitat changes.</p> <ul style="list-style-type: none"> • Prepare and analyse all biomonitoring data and compile a six-monthly report. Each report should compare data from previous monitoring surveys and document trends. • All field and analysed data will be supplied in original format and incorporated into a data management system.
[OO - 75] Transmission Line Monitoring for Birds Collision and Electrocutation	<ul style="list-style-type: none"> • Undertake bird collision and electrocution monitoring along the 132kV and southern portion of the 400kV transmission line. This should be continued for two years or as long as no fatalities of threatened raptors are recorded. • The work could be done by an ecologist in MHPL if available or alternatively identify suitable and interested residents of nearby communities. Such person must be able to walk the transmission line alignment and record (with GPS enabled smart phone) the locations of any bird carcasses or evidence of feathers under or adjacent to the line. Such bird monitors shall be able to commit to monthly checks; speak and write good English, identify priority bird species, and have a genuine interest in ecology fieldwork. • A bird expert shall conduct initial training and oversight to ensure data collection is conducted and results recorded correctly. • Any carcasses found shall be photographed to enable species identification to be confirmed, including head, beak, wing and breast feathers and feet. • Any rings or tags, if present must be recorded and reported to Lilongwe Wildlife Trust. • All records of surveys and key findings will be entered into a wildlife incident tracker.

5.12.3.2 BIO 2: Off-Site Biodiversity Management (BAP)

Implementation of the Off-site Biodiversity Protection Measures summarised in Section 5.12.2 will be continued through operations based on the planning conducted during the pre-construction and construction phases.

Ongoing operational measures for offsite biodiversity management will be an extension of the off-site actions initiated during the construction phase summarised below:

[OO- 76] Security Protection of Majete Wildlife Reserve	<ul style="list-style-type: none"> • Ongoing funding for security patrols and fence maintenance • Ongoing monitoring and reporting on incidents of poaching, encroachment • Ongoing biannual and annual reporting and funding for security protection measures
[OO- 77] Biodiversity Conservancy Implementation	<ul style="list-style-type: none"> • Ongoing implementation of conservancy protection, monitoring, environmental awareness and community outreach activities • Ongoing reporting on progress with natural restoration and monitoring results • Updates to conservancy management plan
[OO- 78] Elephant Marsh Community Conservation Area	<ul style="list-style-type: none"> • Ongoing coordination and monitoring in alignment with management plan and BMEP requirements • Updates to CCA management plan
[OO- 79] Supporting Conservation Actions	<ul style="list-style-type: none"> • Ongoing funding for vulture conservation research • Ongoing protection and monitoring of pangolins that may be introduced to the conservancy • Ongoing funding for post-graduate student research.



5.13 Local Area Development

5.13.1 Strategy

5.13.1.1 Context

The Project recognizes that the economic benefit at the national level will be produced using the natural resources of the middle Shire valley and that communities have a right to share in that benefit – and that this is not compensation for adverse impacts. The ESIA as well as public meetings conducted in 2024 highlighted the need for the Project to support local area development initiatives to directly benefit local communities and enhance value creation at the local scale.

For this purpose, a Local Area Development Programme (LADP) will be established by MHPL. This Programme will comprise a portfolio of Local Area Development subprojects, each of which will have its own specific Management Plan. In broad terms, the LADP is a tool proposed by the Project to support the local communities to build community capacity, address development challenges and to take advantage of emerging opportunities. It aims to achieve consistent sharing of benefits with the communities over the lifetime of the Project, and to promote long term sustainability.

The approach to Local Area Development is defined by this framework document. This framework has been developed by MHPL via a series of workshop discussions designed to address (i) key questions at the corporate level including the objectives of community investment, community development and the associated budget envelope and (ii) key questions of substance, including the approach to selection of geographic areas and target groups that will directly benefit from the community investment for local area development, as well as the approach to defining and potential sectors or themes of intervention.

More specifically, the Local Area Development Plan framework is based on the principles of benefit-sharing, such that project benefits can be maximised and distributed across a range of stakeholders, through relevant spatial and temporal scales, using various appropriate mechanisms, and remaining consistent with the principles of sustainability. In its strictest sense, “benefit-sharing” is understood as the sharing of benefits between the project and its local communities, and at the very least is designed to enhance positive outcomes for project-affected people. This means that the measures described must go beyond that which would normally be provided by the project and benefits are only realised when the outcome is additional to reasonable compensation for adverse impacts endured by the communities.

5.13.1.2 Target Groups

The LADP will primarily fund initiatives and activities in affected villages in the following Traditional Authorities:

- TA Kunthembwe and TA Kuntaja in Blantyre District,
- TA Mlauli and TA Symon in Neno District,
- TA Phalula in Balaka District,
- TA Kasisi and TA Mlilima in Chikwawa District.

Residents of those villages will be the target groups.

It is understood that with further development of the LADP, the benefit-sharing may extend to target groups beyond the immediate project-affected peoples and may, in some cases, encompass the subnational region in which the project is based. The LADP will also take into account that community profiles and baselines may change as a result of the Project and that this will need to be considered during the development and implementation of benefit-sharing interventions (i.e. the Local Area Development subprojects) over the course of the Project lifetime.



5.13.1.3 Definition of Themes/Sectors of intervention

A range of potential issues that are important at various scales have been identified and specific challenges faced by the local communities have been outlined during stakeholder engagements to date. These include Community infrastructure and services, Access to education, Food and income insecurity, Deforestation and Community engagement with forestry, Access to finance and microenterprise development, Technical capacity building in the local workforce, Water resources, and Rural electrification.

These will be further examined during the development of the Local Area Development Programme by the MHPL LADP team.

The Local Area Development Programme will examine opportunities to complement but avoid duplication of existing projects and developments including:

- Skills development (e.g. Skills for a Vibrant Economy Programme)
- Irrigation and water supply (e.g. Shire River Valley Transformation Programme)
- Transmission lines and roads development (e.g. MOMA & MAREP)
- Malawi Watershed Services Improvement project (MWASIP)

Selection of local or wider project interventions will be on a case by case basis depending on key criteria to be refined in the LADP including applicable sector, implementation partners, outcomes of pilot feasibility studies, and timeframes.

The preferred approach is to “start large” taking a holistic approach to key issues, and then to progressively reduce the extent of interventions according to key criteria, as opposed to focussing only on the immediate needs of (or requests from) local communities (e.g. rather than construction of a school, focus on education / access to education, and rather than a road upgrade, aim to develop themes related to sustainable transportation).

It is also recognised that it may be pertinent to consider early alignment with current District-level interventions, initiatives and policies for sustainable community development.

Screening and selection criteria will be developed by MHPL as part of the Local Area Development Programme. This will ensure that investment options are clearly identified and that shared areas of interest can be identified based on agreements reached during participatory consultations between target groups, communities, municipalities, districts and MHPL.

Criteria that would be applied to select and design each subproject are:

- Sustainability factors (economic, environmental and social, alignment with UN SDGs)
- Alignment with existing government or municipal plans for local development.
- When possible, rehabilitation or completion of existing infrastructure before investing in new construction.
- Cost-benefit considerations, i.e. the number of people benefiting from the initiative compared to the cost for the Project.

Learning outcomes from a series of pilot projects implemented during the Project pre-construction phase and early construction phase will be used to refine the focus, objectives and methodology of LADP subprojects. This will enhance the likelihood of effective outcomes and sustainability of the benefits shared with the target groups.

Each LADP subproject will have its own Management Plan, procedures and activities. Different LADP subprojects of the LADP portfolio may be implemented at different spatial and temporal scales. The LADP takes a progressive approach, using pilot and feasibility studies to be initiated during the early phases of construction.

Funding will not be allocated to initiatives supporting political and religious purposes.



5.13.1.4 Governance & Financial Planning

Supporting a portfolio of subprojects through the Local Area Development Programme requires specific management and governance to achieve the planned development targets, to reach the intended beneficiaries and to avoid misuse of funds.

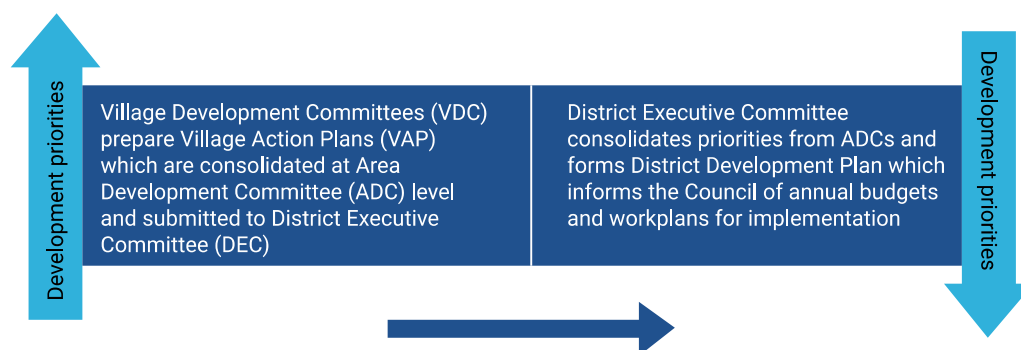
The LADP and its portfolio of subprojects will be managed by MHPL. The objective is to materialize the first investments one year after the start of the construction period on the basis of the investments discussed with the communities during the preconstruction phase and the first year of construction.

The potential benefits of establishment of an LADP participatory consultation forum will be examined during the preconstruction phase. Such Forum would include target groups, communities, municipalities / districts and MHPL.

During the Project’s construction period, implementation of the LADP will be overseen by the Community Investment group under the MHPL E&S department in conjunction with the Village Councils and LADP participatory consultation forum as the main conduit for engagement between the Project and the target groups / communities.

The approach to LADP governance will align with the national approach to local project governance (see Figure 5-5).

Figure 5-5: Illustrative Summary of Decision-Making in Decentralized Structures in Malawi



Source: (UNDP, 2022)

Selection of the mechanism for benefit-sharing will be made after consultation with the Local Area Development group including the MHPL E&S department and appropriate representatives of the target groups via consultation with the LADP participatory consultation forum.

This will include consideration of the appropriate local government's interest in reaching an agreement for revenue sharing, and the availability of local implementing partners to deliver the initiatives and services.

The LADP will clearly define boundaries, responsibilities, governance and partnerships, define exit strategies, set up external financial oversight and a Programme-level M&E framework to extend over the duration of the Project.

5.13.2 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	<ul style="list-style-type: none"> • The Local Area Development Plan framework guides the development and implementation of the Local Area Development Programme – itself conceived as a series of Plans each addressing a particular subproject, identifying procedures and activities to achieve the overall objectives of the Framework. • The objectives are set out below and combine key elements of the MHPL Project environmental and social goals with the objectives of best practice (GIIP) in benefit-sharing. • Enhancement of local economic development through:
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	<ul style="list-style-type: none"> ▪ Recognition and enhancement of existing acquired skills; ▪ Increasing employment opportunities; ▪ Support for training and development of capacities and capabilities of local businesses and suppliers; ▪ Enhancing access to microfinance, microenterprise and small/medium (SME) initiatives, targeted where appropriate to women, youth and vulnerable groups; ▪ Leveraging of relevant project infrastructure; • Support for the provision of local energy infrastructure and services, including rural electrification / solar PV initiatives. • Enhancement of productivity and diversification of agricultural activity through: <ul style="list-style-type: none"> ▪ Supporting projects that promote local farming practices to increase yields through improved farming techniques and to reduce food insecurity in the Shire floodplain; ▪ Supporting projects that integrate management of watersheds and related ecosystem services through community forestry to achieve environmental net gain. • Enhancement of wellbeing through: <ul style="list-style-type: none"> ▪ Increasing the quality of and access to healthcare; ▪ Identifying and supporting measures to address key health drivers ; ▪ Support and promotion of safe drinking-water, sanitation and hygiene (WASH) facilities improvement; • These objectives will be further refined and possibly redefined in the LADP to be developed by MHPL during the Project preconstruction period in anticipation of readiness for implementation during the construction and operation phases.
Component	<p>Three components form the present Framework:</p> <ul style="list-style-type: none"> • LADP 1.- Local Area Development Assessment • LADP 2.- Governance and Financial Planning • LADP 3.- Selection, Timing and Delivery of Local Area Development Projects
Timeframe	<ul style="list-style-type: none"> • MHPL intends to support community investment initiatives during the construction period and the operation phase to achieve sustained sharing of benefits with the project-affected communities. The ESMMP budget does include provisions for financing of LADP initiatives during the operation phase. However, the LADP has a financing peak planned during the construction period, when the increase spending power of the population could enhance development opportunities.
Responsibility	<ul style="list-style-type: none"> • MHPL: Management, co-implementation and monitoring • GoM: Co-implementation, ownership and exit strategies
Performance Criteria	<p>LADP 1:</p> <ul style="list-style-type: none"> • Availability and relevance of Local Area Development Assessment report • Availability and relevance of the Local Area Development Programme <p>LADP 2:</p> <ul style="list-style-type: none"> • Communities approval of each subproject and LAD Plan as demonstrated in minutes of meetings of the Participatory Consultation Forum • Availability of business plan for each LADP subproject initiative, as required • Signed Memorandum of Understanding for each LADP subproject initiative, as appropriate <p>LADP 3:</p> <ul style="list-style-type: none"> • Evidences of structural and non-structural investments • Actual timing and budget matches forecast • Number of beneficiaries as planned. • Construction evaluation report • Third party M&E report



5.13.3 Implementation and Monitoring Actions during Pre-Construction

[OC- 177] Screen existing capacities	<ul style="list-style-type: none"> Review MHPL team capacity and capabilities to design and manage LADP pilot studies and subprojects; Initiate targeted training, capacity building and recruitment to reinforce the LADP management team; Screen potential implementation partners appropriate to the preliminary sectors of intervention according to their capacities, availability, governance; Identify and assess the potential for alignment with local development partners, institutions and stakeholders (based on local knowledge strengths and weaknesses, governance)
[OC- 178] Initiate acquired skills accreditation	<ul style="list-style-type: none"> Examine and select the potential mechanisms for MHPL to support vocational training activities targeted at skills which will be required during construction. Work with relevant skills agencies to develop a mechanism to recognise and accredit people in the target group whose skills and competencies are not currently formally recognised but have been gained during employment on other similar construction projects, to enhance their potential for successful engagement by the Project/ EPC Contractors during the Construction phase;
[OC- 179] Develop the Draft Local Area Development Programme	<ul style="list-style-type: none"> Develop the Draft LADP to include the following components: : Overview (Mission, Guiding principles, Scope); Management (Key role and responsibilities, Governance, Investment Areas, Community disclosure); Implementation schedule and monitoring-evaluation

5.13.4 Implementation and Monitoring Actions during Construction

5.13.4.1 LADP 1: Local Area Development Assessment

[OC- 180] Conduct a Needs Assessment	<ul style="list-style-type: none"> Using the results of the socio-economic surveys conducted in 2023, establish a preliminary register of potential areas of interest from communities in the Project area. Identify on-going community development initiatives in the broader area supported by local NGOs, governmental agencies, local businesses. Assess the potential for alignment with current Village- and District-level development interventions and initiatives. Conduct a participatory field assessment per village and per sector (health, education and skills, agriculture) of areas of improvement. Draft a Local Area Development Assessment report with a breakdown of potential Local Area Development initiatives and preliminary schedules (budget, timing, ownership).
[OC- 181] Finalize the Local Area Development Programme	<ul style="list-style-type: none"> Based on the Local Area Development Assessment report, and in consultation with the LADP Participatory Consultation Forum (see below), rationalize and prioritize the potential initiatives per target group for the first 3 years. Screen local implementing partners' capacity to deliver the initiatives and services, if applicable. Consider and test opportunities to complement existing development projects affecting LADP target groups. Prepare the Local Area Development Programme including: <ul style="list-style-type: none"> Overview (mission, guiding principles, scope) Management (key roles and responsibilities) Implementation scheduling Identification and prioritisation of subprojects and programmes / themes & sectors Joint definition by the project and the relevant communities of the LADP vision and ambitions Community disclosure / participatory consultation forum



	<ul style="list-style-type: none"> ▪ LADP governance and financial planning ▪ Establishment of relevant baselines (i.e. those not otherwise covered by the ESIA such as availability of local skills and vocational training, agricultural productivity, health status and drivers) ▪ Delivery plan including identification of key delivery/intervention partners, and ▪ Monitoring, reporting and adaptive management to respond to changes in socioeconomic and environmental conditions over time.
[OC- 182] Design and Initiate pilot projects to scope LADP subproject interventions	<ul style="list-style-type: none"> • Disclose the Programme locally and on MHPL’s website • Based on the outcomes of discussions with target groups and relevant intervention partners, initiate 6-month pilot projects to refine the scope, methodologies, and desired outcomes of LADP subprojects • Use the results of the pilot projects to inform the design of LADP subproject interventions for the duration of the construction phase (i.e. years 1-4) • If required, revise pilot projects for a further 6 months testing prior to developing and initiating longer term LADP subprojects. • Design pilot projects to ensure that the results of benefit-sharing studies (e.g. baselines, pilots) are integrated / aligned with other E&S management actions.

5.13.4.2 LADP 2: Governance & Planning

[OC- 183] Set up a consultative LADP forum for participatory planning and engagement	<ul style="list-style-type: none"> • Scope potential stakeholders for the LADP Participatory Consultation Forum for regular participatory consultation on the LADP with target groups, other local communities and implementation partners, based on existing institutions (including Area Development Committees and Village Development Committees). • Develop a viable handover strategy and clear set-up for the ownership, operation and maintenance arrangements to avoid creating dependency and to ensure that the initiatives can become self-sustaining once MHPL withdraws its support.
[OC- 184] Finalize the priority investment plan and establish a pluriannual Local Area Development Programme for all subprojects	<ul style="list-style-type: none"> • Meet the target groups (communities and districts) and refine proposed timing for delivering Local Area Development subprojects for sectors covered by the Programme. • Agree on priority investments to be initiated in year 1 of the LADP. • Establish clear management plans for each of the LADP subprojects. • Establish a rolling 3-year programme for LADP interventions, to be reviewed annually. • Clarify institutional arrangements: who owns the works/services during construction / establishment and how/when/to whom is transferred the ownership when project funding ends. Flag initiatives that have no sustainable (i.e. without Project’s support) operation and/or maintenance system. • Clarify potential liability issues associated with initiatives and flag/remove initiatives where liabilities are unacceptable. • If appropriate, establish Memorandum of Understanding with the Districts or other institutional partners on ownership, operation and maintenance responsibilities. • Review the business plan for each initiative and assess level of accountancy/financial advisory support required. • Breakdown the execution of each LADP subproject Plan into sub-tasks, establish an activity schedule with milestones and share with stakeholders via the LADP Forum.
[OC- 185] Manage the LADP	<ul style="list-style-type: none"> • MHPL is managing the LADP in consultation with the participatory LADP forum • Organize quarterly (or more frequent as appropriate) site visits with relevant stakeholders to oversee progress, solve pending issues and evaluate achievements. • Disclose LADP achievements to local communities as part of the external E&S reporting from the Project including on the Project’s website.



[OC- 186] Secure long-term use/benefit of the LADP-funded initiatives	<ul style="list-style-type: none"> • Formalize hand-over with the long-term owner of the goods/services/works funded by the LADP. • Monitor the implementation of the first commitments on long-term responsibilities and maintenance requirements with the owner. • Set up a mechanism to share LADP experiences and subproject knowledge with other partners including businesses, government, researchers, lenders and the development community of practice.
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5.13.4.3 LADP 3: Delivering Local Area Development Programme

The specific management actions of this component will depend on the outcome of the Local Area Development Programme (Components LADP 1 and LADP 2 above).

[OC- 187] Access to vocational training and Accreditation of informal skills and competencies	<ul style="list-style-type: none"> • Carry out a needs assessment and gap analysis based on Project demand for construction skills and procurement services, targeted where appropriate to enhance access by women youth & vulnerable groups; • Identify and engage with potential appropriate technical education and training partners at the local, regional and national level, drawing on the findings of the training provider interviews undertaken as part of the local content study; • Coordinate with target Village and District authorities via the LADP Forum to refine needs and options to implement vocational training activities (e.g. training of trainers, educational material/equipment, facilities, administration requirements, sponsorship); • Identify interested technical and/or financial partners (international universities, aid agencies) which have been involved in similar activities in Blantyre; • Define objectives of vocational training programme and develop a detailed action plan; • Implement training subprojects and deliver training certificates; • Evaluate effectiveness of vocational training supported by the LADP; • Adapt next training sessions accordingly.
[OC- 188] Investments in health sector as planned in HEA 4	<ul style="list-style-type: none"> • Prepare detailed terms of reference for, and retain the services of, a qualified person or firm to help developing the initiative relating to the health sector. • Implement management actions proposed in section 5.8, as follows. • Inventory existing initiatives and active health partners currently operating in the Project area in support of the below-mentioned community development initiatives: <ul style="list-style-type: none"> ▪ Community-level WASH initiatives: Structural (water and sanitation infrastructure) and Non-structural (hygiene promotion and behaviour change activities, support to operation and maintenance) measures; Clean community campaigns to address risks associated with transmission of WASH related diseases; Provision of alternative sources of drinking water to communities using the Shire River for domestic water and which are temporarily affected by altered reservoir water quality during filling. ▪ OneHealth initiatives, including veterinary/animal health initiatives, linkage to HSAs/community health workers and support of snake bites in local health facilities. ▪ Food hygiene and waste management in local marketplaces in the Project area. • Obtain typical specifications from governmental departments for targeted equipment, buildings rehabilitation of construction, care services, or medical supply. Obtain a list of potential suppliers. • Work with target group to (i) validate or amend specifications and (ii) verify availability of resources to operate and maintain/sustain the services/goods/works provided as part of the LADP without assistance from MHPL. • Request quotations, select, procure and deliver the medical goods or services in beneficiary village(s).
[OC- 189] Access to microfinance	<ul style="list-style-type: none"> • Carry out a needs assessment of the available mechanisms for microfinance and for support to SME initiatives, in the local communities;



<p>and SME initiatives</p>	<ul style="list-style-type: none"> • Research the existing financial services landscape in Malawi, including other microfinance institutions and traditional banking options. • Identify local partners / development partners to support enhanced access to microfinance, microenterprise/SME support initiatives; • Prepare detailed terms of reference for, and retain the services of, a qualified NGO or firm to develop and implement the initiative relating to micro-finance and SME support • Implement microfinance activities: <ul style="list-style-type: none"> ▪ Training and education programs for community members to understand financial concepts and the importance of savings and credit; ▪ Offering savings accounts, credit services, and sometimes insurance to help individuals start or expand businesses. ▪ Establishing a transparent and accountable governance structure with elected leaders and active participation from members. • Implement support to SME activities.
<p>[OC- 190] Agriculture support / community forestry</p>	<ul style="list-style-type: none"> • Establish scope of work for the technical assistance and define a management framework adapted to the need of agricultural support to address food insecurity in the context of a changing local and global climate. • Select a technical partner (consultancy or NGO) specialized in agricultural support initiatives with small scale irrigation as the objective of this component of the LADP is to reduce dependencies from the floodplain downstream of the dam. • Establish conditions of sustainability (e.g. pilot farms, input from beneficiaries) and annual work programmes for the first three years. Consult with the community via the LADP participatory consultation forum. • Select and mobilize a technical partner (consultancy or NGO) specialized in community forestry development and establish conditions of sustainability (e.g. pilot forested areas, input from beneficiaries) and annual work programmes. • Formulate proposed objectives, results, activities, performance indicators, budget and assumptions into a concept note. • Execute the programme activities. • Monitor efficiency, effectiveness and sustainability every 6 months against initial objectives.
<p>[OC- 191] Community infrastructure and services support</p>	<ul style="list-style-type: none"> • Based on pilot studies already carried out by MHPL on rural electrification and the provision of solar PV to local schools, implement support to rural schools for PV installation. • Polluting, open fires and inefficient stoves cause many harmful environmental health risks. Promote cleaner, more modern stoves and fuels that have the potential to reduce deaths from smoke-related illnesses, mitigate climate change, and lower air pollution. • Consult with the LADP Participatory consultation forum and selected EPC contractors to evaluate opportunities to develop LADP subprojects that leverage Project infrastructure to support local area development beyond the construction and operation phases of the Project. Examples include: Waste management (segregation, reuse, composting); Driving consumer demand for cleaner, more modern stoves and fuels; Reuse of excavated waste rock and soil / small rock materials (e.g. for local construction / aggregates for concrete), Repurposing of technical facilities, construction camps. • Execute selected subprojects.



5.13.5 Implementation and Monitoring Actions during Operation

5.13.5.1 LADP 2: Governance & Planning

[OO- 80] Evaluation of LADP performance during construction period	<ul style="list-style-type: none"> • Evaluate the past years LADP initiatives funded by the Project and effectiveness of the community development strategy. • Review and integrate lessons learnt on governance, technical partners, impacts, sustainability. • Use the LADP Forum to consult with local stakeholders, conduct perception survey and revise Local Area Development Plan governance accordingly.
[OO- 81] Updating of the Local Area Development Programme	<ul style="list-style-type: none"> • Draft a revised strategy for the next three years, based on the evaluation outcomes, knowledge gained on local needs and beneficial impacts of the LADP implementation. • Disclose the strategy locally and on the project website.
[OO- 82] Annual LADP Planning	<ul style="list-style-type: none"> • Update the LADP and individual LADP subproject management plans • Include in Annual Work Plan for MHPL E&S Management • Establish a forum for ongoing, regular participatory consultation on the LADP with target groups, other local communities and implementation partners

5.13.5.2 LADP 3: Delivering Local Area Development Programme

[OO- 83] Develop KPIs for sub-projects	<ul style="list-style-type: none"> • Develop performance indicators based on Programme and subproject objectives as established by each Local Area Development Plan (for each subproject) • Each subproject will have its own specific set of Key performance indicators related to implementation, governance, finance and achievement of key project outcomes
[OO- 84] Technical assistance	<ul style="list-style-type: none"> • Establish Scope of Work for technical assistance • Mobilize technical partners and prepare technical specifications and tender documents • Assess constraints in terms of service continuity during implementation of investment and plan works accordingly • Execute the works, services or supply as applicable • Monitor efficiency, effectiveness and sustainability every 6 months against initial objectives.



5.14 Reservoir Management

5.14.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objectives	<ul style="list-style-type: none"> The reservoirs are managed to optimise benefits to community livelihoods without compromising dam operations and health and safety. To make provision for sufficient water source allocation to communities to maintain and improve existing livelihoods
Component	<ul style="list-style-type: none"> RES 1: Reservoir Zoning RES 2: Community and Livestock Access to Reservoir Water RES 3: Reservoir Fisheries RES 4: Alien Invasive Fish and Aquatic Weed Management
Timeframe	<ul style="list-style-type: none"> Reservoir clearing by communities and investigation of the feasibility of a reservoir fishery will be conducted during the pre-construction and construction phase. Planning for provision for community and livestock access to water and reservoir monitoring actions will be done during construction and executed during operation phase (post reservoir filling). Aquatic weed management will continue through operations.
Responsibility	<ul style="list-style-type: none"> MHPL will have overall responsibility but actions relating to fisheries and monitoring will require the support of the Department of Fisheries.
Performance Criteria	<p>RES 1. Reservoir Zoning</p> <ul style="list-style-type: none"> Reservoir full supply level demarcated prior to community harvesting of resources. Community resources recovered and put to use prior to filling. Reservoir zoning plan defines permitted activities around reservoirs. <p>RES 2. Community and Livestock Access to Water</p> <ul style="list-style-type: none"> Sufficient and safe access to reservoir water provided for community livelihoods (e.g. cattle watering, agriculture/irrigation and domestic uses) <p>RES 3. Reservoir Fisheries</p> <ul style="list-style-type: none"> Fisheries viability study determines the potential for reservoir fishery, with implementation plan and actions a sustainable fishery <p>RES 4. Alien Invasive Fish & Aquatic Weed Management</p> <ul style="list-style-type: none"> Alien fish and aquatic weeds monitored and confirm no to limited alien presence in reservoirs.

5.14.2 Implementation and Monitoring Actions during Construction

5.14.2.1 RES 1: Reservoir Zoning

A Demarcation

[OC- 192] Demarcate land take area of both reservoirs	<ul style="list-style-type: none"> Demarcate the land take area (Q1000 n-1 flood line) with concrete posts and engage communities to ensure they understand where the full water level of the reservoirs will be. Demarcate physically on the ground the potential islands in the main reservoir so that vegetation will not be cleared outside these limits. Manage the time between the demarcation and the payment of compensation to (i) avoid opportunistic settlement and /or speculation, and (ii) allow the affected person to anticipate displacement.
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B Pre-impoundment Reservoir Resource Valorisation

<p>[OC- 193] Define institutional arrangements for community exploitation of reservoir resource pre-impoundment</p>	<ul style="list-style-type: none"> • Discuss with District councils and other appropriate regulatory authorities which have jurisdiction on the reservoir land that is acquired before reservoir filling to determine how to manage access to natural resources in the reservoirs for local communities, pre-impoundment. • Agree on a legal waiver to authorize exploitation of natural resources within the reservoir boundaries before impoundment, without extraction permits. • Document and disclose accordingly.
<p>[OC- 194] Assess social feasibility of community reservoir resource recovery</p>	<ul style="list-style-type: none"> • Engage with village representatives and Village Development Committees affected by the reservoirs footprint to discuss and confirm the opportunity for community land holders to harvest resources (timber and non-timber products) from the reservoirs area and the timing associated with this. • Anticipate, and identify measures against, intra-community conflicts and conflicts between former land owners/users (to be compensated by the RAP) and reservoir resource valorisation initiatives selected by Village Development Committees. • If effective measures for managing conflicts are not feasible, the community reservoir resource recovery may be cancelled.
<p>[OC- 195] Inventory of available resources and define MHPL support</p>	<ul style="list-style-type: none"> • Undertake participatory inventory of all possible resources in the two reservoirs that could be recovered for community benefits, e.g. soil, sand, timber and non-timber products. • Define with VDCs and the type of support that MHPL could bring to assist communities in removing natural resources from the reservoirs (e.g. transport of timbers). • Plan as required.
<p>[OC- 196] Implement and monitor the selected support measures</p>	<ul style="list-style-type: none"> • Implement and monitor the selected support measures. • Inform communities on, and enforce, deadlines for stopping any activities in the reservoirs footprint.

C Develop a Reservoir Zoning Plan

<p>[OC- 197] Compile the Reservoir Zoning Plan</p>	<ul style="list-style-type: none"> • Contract the services of a suitably qualified person to develop a Reservoir Zoning Plan for each of the two reservoirs. • Consult, receive and consolidate comments on the draft zoning plan from relevant government agencies and riparian stakeholders (including community representatives).
<p>[OC- 198] Define and Designate Permittable Activities and Areas</p>	<ul style="list-style-type: none"> • Designate permittable activities and access points to the main reservoir and the Regulating reservoir for specific uses, including location of fencing where applicable. • Defined activities to be covered by the reservoir zoning plan includes: <ul style="list-style-type: none"> - Water abstraction points for irrigation pumps, domestic uses, fish farms (if confirmed viable) (and permitted volumes); - Boat access, crossing points and installation of jetties; - Designated cattle watering points (to minimise vegetation degradation and shoreline erosion); - Fishing areas and collection, storage and transport points (linked to outcome of reservoir fisheries feasibility study and implementation plan); - Access for aquatic weed dredging and removal, and deposition / dewatering sites for aquatic weed (prior to transport and removal); - Community irrigation / agricultural cropping zones; - Neno conservancy zone and other protection zones that may be required (e.g. restricted human access zones where hippopotamus and crocodiles are likely to congregate on low gradient banks); - Aspects to be monitored and managed relating to potential human wildlife conflicts and other risks related to the reservoir (e.g. awareness raising



	measures (i.e. signage, other notifications) to inform users of community health and safety risks and control measures(e.g. bilharzia, crocodiles, hippos)).
[OC- 199] Define Restrictions on Human Use in Zoning Plan	<ul style="list-style-type: none"> Clarify GoM’s requirements for the width of the buffer area around the two reservoirs. Adjust the land take area and the RAP accordingly. Restrictions to be incorporated in the plan include [to be revised, and if confirmed, included in the RAP]: <ul style="list-style-type: none"> No farming and other development in the Q1,000n-1 No cattle kraals will be permitted within 300 m of full supply level to minimise nutrient inputs and bacteriological pollution to the reservoir. No reservoir access within 500 m of the dam wall and spill way [safety boom]. No access to regulating reservoir edge for domestic uses in areas defined as Neno conservancy zone or other protection zones.

5.14.2.2 RES 2: Community and Livestock Access to Water

[OC- 200] Institutionalize community access to main reservoir waters	<ul style="list-style-type: none"> Confirm the two key institutional commitments undertaken in the 2024 ESIA with the relevant regulatory authorities, i.e.: <ul style="list-style-type: none"> Apart from the two exclusive zones (500 m from the main dam facilities, 500 m from the Tedzani tailrace) and the new Neno conservancy zone, communities will be able to access the main reservoir (shore and water) and use its water as they are presently doing with the Shire River (i.e. drinking, cattle watering, domestic, fishing), provided it does not interfere with the dams’ operation. The Project production projections will factor in a contingency extraction of 2m³/s for small-scale irrigation purposes during the dry season. Work with GoM to issue a regulatory document that legalizes these commitments.
[OC- 201] Implement community and livestock solutions planned in the RAP to provide access to main reservoir water	<p>As defined in the RAP, undertake the sequence of management actions required to restore access to water to affected households:</p> <ul style="list-style-type: none"> Participatory assessment of robust small-scale irrigation, livestock watering and domestic water, using main reservoir waters Select implementing partners. Implement and monitor.
[OC- 202] Prepare wildlife, community and livestock solutions to provide access to regulating reservoir water	<ul style="list-style-type: none"> On Blantyre side: <ul style="list-style-type: none"> Access by local residents to the regulating reservoir margin, but not to the water body, will be authorised between the fenced area and 500 m upstream of the regulating dam. Consult with affected communities to identify the most appropriate location for the new safe access to the permitted regulating reservoir area to be installed for residents and domestic animals, as per [OC- 15]. On Neno side: <ul style="list-style-type: none"> Investigate and confirm locations for suitable wildlife water points in the proposed Neno conservancy. Construct watering points in some small weirs in suitable side channels of the Regulating reservoir where full supply water can replenish water. This will reduce the need for animals to drink at the reservoir edge where they could potentially become stranded. Weirs should be designed with fish protection to minimise risk of fish entering the weirs and becoming stranded as water levels lower.

5.14.2.3 RES 3: Reservoir Fisheries

[OC- 203] Undertake a Fisheries	<ul style="list-style-type: none"> Prepare terms of reference for, and retain the services of, a qualified person to prepare a Fisheries Feasibility Study for Reservoir Fisheries. The study should involve qualified and experienced staff of the Department of Fisheries.
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<p>Feasibility Study (Reservoir)</p>	<ul style="list-style-type: none"> • Prepare a Fisheries Feasibility Study and if viable a Reservoir Fisheries Plan based on guiding principles indicated in the below management actions. • Consult, receive and consolidate comments on the draft plan from relevant government agencies, riparian communities and consider them in the revision of this plan. • Conduct an initial feasibility study to confirm potential viability and risks of developing a reservoir-based fishery in the main reservoir. A qualified fisheries expert with experience of reservoir-based fisheries in tropical African environments should be contracted to conduct the study in concertation with the Department of Fisheries. The study will provide a useful basis for engaging communities on livelihood restoration options. • The study will need to consider: <ul style="list-style-type: none"> ▪ The potential for the indigenous fish species present in the Shire River that are predicted to occur in the reservoir (notably <i>Oreochromis shiranus</i> and <i>O. karongae</i>) and their life-cycle requirements, including the risks of getting entrained in turbines. ▪ The risks of inadvertent or deliberate introduction of non-native / alien fish species ▪ Quantify the potential fish biomass (taking reservoir and turbine design and operational regime and water quality factors into account) to determine the sustainability of the potential fishery. ▪ Fishing methods and equipment required to fish in reservoir (boats, nets, etc) and associated costs. ▪ Potential fisher safety risks posed by possible wildlife (hippopotamus and crocodiles) in the reservoir. ▪ Required fishers organization based on existing or new community structure. • The study will need to consider the potential beneficiaries of a potential reservoir fishery. It will need to clearly conclude whether a reservoir fishery is viable, and under what conditions, the potential beneficiaries, and the potential for it to improve food security and income to local community members.
<p>[OC- 204] Develop an Initial Reservoir Fisheries Plan</p>	<ul style="list-style-type: none"> • Develop an Initial fisheries plan that will: <ul style="list-style-type: none"> ▪ Describe and analyse proposed options for fishery development, including analysis of suitable species; ▪ Identify appropriate indigenous species and provides an estimate of sustainable yields; ▪ Identify control measures to prevent introduction of alien invasive species; ▪ Consider and identify pest and disease control requirements; ▪ Establish fishing rights, licences and practices to limit over-exploitation, prevent inequitable access, and monitoring requirements to ensure sustainability; ▪ Identify equipment and supply chain requirements, including facilities for storage of equipment, fish landing and boat launching, and cold-chain management (if warranted); ▪ Promote the conservation of threatened and restricted range species, where applicable; ▪ Include monitoring requirements to monitor catches and enhance knowledge of the fishery resource and provide guidance with respect to ongoing management practices. ▪ Outline the structure and participation of a Fishery Committee with representatives of the Department of Fisheries and beneficiary communities to ensure participatory planning and fair and representative involvement by the target beneficiaries.



5.14.2.4 RES 4. Alien Invasive Fish & Aquatic Weed Management

A Alien Invasive Fish

Accidental or deliberate introduction of invasive fish species to the Middle Shire (e.g. tiger fish *Hydrocynus vittatus* a highly predaceous fish from the Lower Shire, Australian red claw crayfish *Cherax quadricarinatus* that is present in the lower Zambezi, and Nile tilapia *Oreochromis niloticus*) represents one of the biggest risks to the protection of indigenous fish biodiversity in the Middle Shire from where they can potentially invade Lake Malawi and predate on its unique fish diversity.

<p>[OC- 205] Develop an Alien Fish Management Plan</p>	<ul style="list-style-type: none"> • Develop an integrated Alien Fish Species Management Plan that incorporates the various measures based on the considerations below, required to prevent, monitor, and adaptively manage the potential introduction and increased spread of alien fish in the reservoir if it occurs. • The plan will need to identify the various risks that provide an opportunity for alien fish invasion including the potential role players that may desire to establish a fishery based on exotic fish (albeit illegal in Malawi).
<p>[OC- 206] Awareness / Education on Risks of Alien Fish</p>	<ul style="list-style-type: none"> • Undertake consultation and awareness raising measures with regional, district and community stakeholders as well as representatives of relevant institutions, and conservation stakeholders to: <ul style="list-style-type: none"> ▪ Highlight the risks associated with alien fish introduction to the reservoir and the benefits and potential for a fishery based on indigenous fish species. ▪ Highlight the legal restrictions on introduction of exotic fish for aquaculture and permit requirements for aquaculture development. ▪ Importance of protecting indigenous fish. • Develop posters on indigenous fish in the Shire River system (and Lake Malawi) and threat of alien invasive fish which can be erected at offices, public areas in government departments, schools, and at the dam.
<p>[OC- 207] Plan for Measures to Restrict and Manage Alien Fish in Reservoir</p>	<ul style="list-style-type: none"> • Prior to operation, the following measures will need to be planned to monitor and manage the potential risk of alien fish establishing or becoming abundant in the reservoir: <ul style="list-style-type: none"> ▪ Monitoring of fish that become established in the reservoir; ▪ Checking boats and equipment to reduce risk of alien species introductions. ▪ Targeted selective fishing if monitoring confirms alien species (e.g. tigerfish) to be present.

B Alien Invasive Aquatic Weed

The Shire River carries significant volumes of aquatic hyacinth (*Pontederia crassipes*) much of which is trapped in the Liwonde Barrage and upstream hydropower reservoirs (Nkula and Tedzani). It also poses a significant problem in the Elephant Marsh due to growth promoted from high nutrient inputs from high fertiliser usage. Although much hyacinth is removed at the upstream HPPs, it is predicted that it will require active management in the Mpatamanga HPP reservoirs to control it from spreading across the reservoir surface.

Aquatic weed management will be required to optimise dissolved oxygen levels; enhance fisheries productivity; maintain fish diversity; and reduce the risk of establishment of bilharzia snails and associated risk of bilharzia in the area. Management and control can be achieved through a combination of routine mechanical dredging and disposal and possibly introduction of biological control weevils. Design measures (e.g. floating booms / barriers) to restrict intake of aquatic hyacinth into the turbines may also be required. Disposal and options for reuse of collected weed (e.g. as a fertiliser) should be given close attention. Provision for aquatic weed access and facilities, and disposal sites will need to be included in the Reservoir Zoning Plan.

The alien invasive plant species monitoring plan is therefore required to meet the following specific objective:



- Alien invasive species management measures under this component are aimed at enhancing the ecological integrity of the reservoir through maintaining water quality (optimising dissolved oxygen and reducing anoxic conditions) and protecting indigenous fish biodiversity while striving to enable a productive and sustainable fishery. Management of aquatic hyacinth is expected to require ongoing long-term management and control as it will be impossible to eradicate.

<p>[OC- 208] Develop Alien Invasive Species Management Plan</p>	<ul style="list-style-type: none"> • Appoint a qualified person (with experience in latest approaches in alien species management in reservoirs) to develop a detailed Alien Invasive Species Management Plan and assist in execution and monitoring. • The plan will need to build on past experience with aquatic weed management in the Shire River Basin by working with institutions previously or currently involved with aquatic weed management initiatives. • The Plan should aim for early intervention (immediately after filling) and build upon and take into account the following: <ul style="list-style-type: none"> ▪ Past and current experience of dam operators on other dams in the region; ▪ New approaches to managing removal and disposal/reuse of aquatic weeds; ▪ Results of previous and ongoing initiatives in the Shire Basin to reduce the scale of the problem and relevance to the Mpatamanga reservoirs. This will need to consider the timescales for effectiveness and potential complications for HPP operation. It is likely that a combination of mechanical harvesting and biocontrol may be most cost effective. ▪ Risks, options and solutions for stockpiling, loading, transporting, disposal methods, and options for reusing the removed weed for beneficial purposes (e.g. fertilisers). ▪ Requirements and associated costs for manpower; dredging equipment; transportation and disposal. ▪ Monitoring requirements including key performance indicators and thresholds that trigger implementation of different control measures (e.g. threshold extent of weed coverage that initiates a requirement to implement dredging)
<p>[OC- 209] Stakeholder Engagement on Integrated Weed Management Plan</p>	<ul style="list-style-type: none"> • Consult the following stakeholders to obtain inputs to the plan and agree relevant control measures: <ul style="list-style-type: none"> ▪ Relevant government agencies responsible for aspects of catchment management; ▪ Upstream hydropower projects (e.g. Nkula/Tedzani) for coordinated management of aquatic weeds to minimise floating masses entering the reservoir, where possible.
<p>[OC- 210] Alien Plant Removal Methods</p>	<p>The plan will need to consider the following management options and measures:</p> <p>Chemical: Options for aquatic weed control shall avoid application of chemical herbicides</p> <p>Manual:</p> <ul style="list-style-type: none"> • Optimise the potential for manual removal of hyacinth in shallow areas to improve job creation opportunities where possible (pending confirmation of no hippopotamus or crocodiles) that could pose a safety threat. <p>Biological Control:</p> <ul style="list-style-type: none"> • Identify existing initiatives for aquatic weed biological control that have proved to be effective and safe for ecosystems. Evaluation of biological control will need to consider the time scales for likely effectiveness (which is likely to take at least 3 years before hyacinth exhibits signs of reduction). This will need to consider the risk of hyacinth with biocontrol agents getting washed out of the reservoir during floods and the need for routine re-releases of weevils. • Plan for the potential for decomposing hyacinth that may sink in the reservoir and the risk of: <ul style="list-style-type: none"> ▪ Efficiency of booms and screens to protect turbines; ▪ Emissions of hydrogen sulphide and reduced oxygen levels;



	<ul style="list-style-type: none"> - Associated risks to aquatic habitat and fish communities; • Implementation of biocontrol measures for water hyacinth would need to include the following: <ul style="list-style-type: none"> - Sourcing stock of biocontrol agents, most likely to be <i>Neochetina</i> weevils; - Establishing of weevil raising facilities to breed weevils in sufficient numbers during construction phase; - Training of staff; - Trials for release of weevils and checks of their effectiveness as planning for the operational phase. <p>Mechanical</p> <ul style="list-style-type: none"> • Investigate, budget and plan for mechanical dredging or harvesting on a routine basis. This will require purchase of a dredger/harvester, possibly barge and support equipment (bulldozer and truck) to harvest, stockpile, dry and transport aquatic weed to a designated site for deposition or processing for reuse. The potential for finding a designated site should be coordinated with upstream operators (Liwonde, Nkula and Tedzani). • Aquatic weed harvested shall be removed from the reservoir and prevented from settling in the lake in order to avoid degradation of water quality (e.g. decreased dissolved oxygen or increased phosphate, nitrogen or ammonia) and impacts on fish. • Prioritise and plan for access of the dredger/harvester in/out of the dam on the left bank. Areas for aquatic weed management shall be designated on the Reservoir Zoning Plan. • Plan and designate areas for drying harvested aquatic weed (i.e. on barge and/or paved area) and transport of weed on paved roads to minimise spread along vehicle access routes. A paved laydown area near the side of the reservoir may be required where aquatic weed can be spread and dried prior to transport. Harvested weed is heavy when full of water and drying can reduce its weight and volume. Water drainage from drying areas shall plan to be conveyed to an evaporation pond where any new weeds can be removed. • Planning for deposition of weed will need to consider suitable areas that balance transport costs and risk of further spread along transport routes to avoid ecological degradation.
<p>[OC- 211] Alien Plant Disposal and Reuse Methods</p>	<ul style="list-style-type: none"> • Aquatic weed management will be based on a need for continuous improvement and implementation of sustainable methods for disposal and reuse that keeps pace with innovation in the field. Disposal options should strive to minimise landfill disposal and use of natural habitats where possible and to seek opportunities for re-use for fertilisers / soil enhancement if feasible. • Undertake a feasibility study to explore options for re-use of harvested aquatic weed. This will require: <ul style="list-style-type: none"> - Recruit experts in aquatic hyacinth management in tropical regions; - Investigate options for re-use of aquatic weeds. This will take into consideration the potential for use in animal fodder, soil enhancement, and biogas and should explore the opportunities, constraints and costs of each option in the context of other hyacinth control measures in the Shire River Basin and economies of scale. Where appropriate, visits to places where re-use has proved viable is recommended to verify costs and methods involved. - Engage district stakeholders to verify potential reuse of water hyacinth (e.g. sugar companies for fertiliser or in sugar cane power plant (if viable)). - Propose and recommend viable options for disposal/reuse, balancing transport costs with benefits of reuse (including non-tangible benefits of using hyacinth for catchment improvement / soil restoration) - Plan for implementation of any feasible options, where found to be viable.



5.14.3 Implementation and Monitoring Actions during Operation

5.14.3.1 RES 1: Reservoir Zoning

<p>[OO- 85] Implement the Reservoir Zoning Plan and Monitor Compliance</p>	<ul style="list-style-type: none"> • Implement the Reservoir Zoning Plan and monitor compliance with zoned restrictions to confirm the requirement for additional management measures such as fencing • Conduct the following checks on a regular basis: <ul style="list-style-type: none"> ▪ Compliance with buffer restrictions (e.g. settlement, cropping, irrigation, cattle kraals and watering, abstraction points, fishing and boat access, aquatic weed access and collection points etc.) ▪ Erosion and sedimentation points and potential control measures. ▪ Encroachment into any designated wildlife protection zones ▪ Human – wildlife conflicts and remedial measures if required.
<p>[OO- 86] Reservoir Signage</p>	<ul style="list-style-type: none"> • Compile and erect sign boards at access points to the reservoir showing the reservoir zoning plan and listing restrictions on access and land use • Provide copies of the Reservoir Zoning Plan and posters to be erected and district offices, schools, and local village community centres as applicable.
<p>[OO- 87] Update Reservoir Zoning Plan</p>	<ul style="list-style-type: none"> • Amend the Reservoir Zoning Plan if required to cater for necessary changes required to optimise reservoir use potential without compromising on reservoir integrity, operational requirements and ability to support fisheries and wildlife. • This may include the incorporating findings of the Reservoir Fisheries Implementation/ Management Plan or amendments thereof.

5.14.3.2 RES 2: Community and Livestock Access to Reservoir Water

<p>[OO- 88] Monitor Safe Access to Water</p>	<ul style="list-style-type: none"> • Monitor the effectiveness of cattle watering weirs and human safety ramps during early operation and adapt design as required. • Prepare contingency plans to identify and plan means to provide households near the reservoir with potable water in the event that the groundwater they previously used is rendered non-potable by the Project (e.g. risk of pollution of groundwater from accidental leaks and spills of hazardous substances at permanent facilities).
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5.14.3.3 RES 3: Reservoir Fisheries

<p>[OO- 89] Surveys to Document Reservoir Fisheries Establishment</p>	<ul style="list-style-type: none"> • Undertake reservoir fish monitoring surveys on a quarterly basis for the first two years commencing within two months of reservoir reaching full supply, possibly reducing to biannual surveys for the following three years depending on results from the first two years. • The fisheries monitoring should link and share results with the aquatic biomonitoring for the Project that is proposed for site upstream, downstream and in the reservoir on a biannual basis (see Section 5.16 Aquatic Biomonitoring) • Reservoir fisheries monitoring surveys should include: <ul style="list-style-type: none"> ▪ Assessment of catch per unit effort (CPUE); and fish yields in different parts of the reservoir, including the upper reaches where species composition may comprise more lotic species. Gillnets are considered the best option for this monitoring. ▪ Fish can be collected for taxonomic or research purposes with spare fish donated to local residents. ▪ Incorporate water quality parameters in the monitoring programme: temperature (at different depth profiles), pH, electrical conductivity and dissolved oxygen. ▪ Reporting of results should detail information on the fish assemblage in different parts of the reservoir (including species, abundance, size, maturity, sex and condition of the fish caught). ▪ Correlate CPUE and fish yield results with water quality and dam depth.
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	<ul style="list-style-type: none"> ▪ Track change in fish diversity and composition, and population yield across successive monitoring campaigns to document the predicted increase in fish stocks over time
[OO- 90] Update the Fisheries Management Plan	<ul style="list-style-type: none"> • Results of reservoir fish monitoring surveys will be used to inform updates to the Fisheries Management Plan, as appropriate. • Specifically, this will require confirmation of potential fish yields of different target species; size range; recommended fishing methods and gear; need for other fishery infrastructure support aspects (e.g. road access) and staffing requirements for fishery oversight and enforcement. If a reservoir fishery is considered viable, the plan should include a detailed costing of investment requirements (e.g. fishing gear; jetties for boat launching; fish processing / equipment storage area (if appropriate) etc. • Use of prohibited fishing gear (e.g. mosquito nets and fine mesh gill nets) will also be specified in the Fisheries Management Plan. • If the fishery is viable and popular, fishers will be required to acquire permits for fishing to limit the risk of overfishing and provide funds for fishery officers. • Should alien fish species be found to be present and/or increase in abundance at levels that pose a risk to indigenous fish then amendments to the Reservoir Fisheries Management Plan to target these and reduce their population may need to be included.
[OO- 91] Restrictions on Reservoir Fishing	<ul style="list-style-type: none"> • Discuss with relevant authorities how to restrict - and enforce that restriction – the intensity of fishing in the reservoir until such time as the fish community has had an opportunity to increase to levels suitable for sustainable harvesting, as determined by the fishery surveys. • Support and monitor the actual enforcement of fisheries restrictions in the reservoir, as applicable • No fishing shall be allowed within 500 m of the dam wall and spillway (or area declared by the HPP Operator as required to maintain health and safety). Only fish monitoring surveys may be allowed within this area when the HPP is stopped. • Undertake participatory engagement with district, community and fisher representatives to obtain buy-in and agreement of the restrictions and regulations specified in the Fisheries Management Plan.
[OO- 92] Training of Fishers	<ul style="list-style-type: none"> • Undertake artisanal fishers training in appropriate fishing techniques to minimise fish mortality and optimise sustainable yields. • Training requirements will be specified in the Reservoir Fisheries Management Plan.

5.14.3.4 RES 4: Alien Invasive Fish and Aquatic Weed Species

A Alien Invasive Fish Species Monitoring and Management

[OO- 93] Alien invasive fish species monitoring	<ul style="list-style-type: none"> • Monitoring of alien fish is linked with the reservoir fishery monitoring above. This is based on quarterly fish monitoring of the reservoirs commencing within two months of reservoir reaching full supply level. • Document the diversity and abundance of fish that adapt to the reservoir and presence of any invasive fish species (including tiger fish and Australian red claw crayfish). Sampling frequency can drop to biannual monitoring once reservoir fish population stabilises. • The reservoir survey will require a boat with motor and suitable nets and should involve staff of the Department of Fisheries. Possible additional taxonomic identification should be provided by external expert if required. • A boat and nets should be purchased and maintained/serviced by the dam operator that will be used for other reservoir monitoring activities. • Undertake fish sampling (including alien species) at different locations between the dam wall and tail end of the reservoir to obtain a representative
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	<p>understanding of the fish species, diversity and abundance along its length at different depth zones (margin, midwater and deep water).</p> <ul style="list-style-type: none"> Record alien species caught including size and abundance classes of different fish species.
[OO- 94] Ongoing awareness raising on alien fish	<ul style="list-style-type: none"> Undertake ongoing engagement with district and community stakeholders including fishers to share fish monitoring results and highlight the need for vigilance to prevent alien fish introduction.
[OO- 95] Measures to manage threat of alien invasive fish species	<ul style="list-style-type: none"> Options to manage alien fish will need to be developed in a dynamic management strategy based on monitoring results. Management measures include: <ul style="list-style-type: none"> Conduct routine monitoring of fish species in the reach immediately downstream of Kapichira HPP to confirm numbers of alien fish (including possible presence of Australian red claw crayfish), and allow for adaptive management based on results. This will help to determine the degree to which the Kapichira falls, fish barrier, and dam act as a suitable barrier to alien species. Depending on results of monitoring in the reservoir, if numbers and size of alien fish are confirmed present at levels that pose a risk to indigenous species, implement selective fishing to target alien species in the reservoir using gill nets with a large mesh size (150mm) to target the large fish which are more predatory than smaller ones. Undertake ongoing monitoring of the fish community in the reservoir to allow for adaptive management.

B Alien Invasive Aquatic Weed Monitoring and Management

[OO- 96] Alien invasive floating plant species monitoring	<ul style="list-style-type: none"> Conduct biannual monitoring of aquatic alien floating plants in and around the periphery of the main dam and regulating dam reservoirs and dewatered reach to confirm the extent of alien invasive aquatic plant spread (e.g. water hyacinth). Record observations of alien plant nodes of infestation with GPS and photographs, and map all alien aquatic floating plant 'hotspots'. Use available imagery to delineate the extent of coverage of alien plants to identify specific nodes of growth where management interventions may be required. Identify suitable management measures for control of aquatic weed spread based on the monitoring results. This could include biocontrol or mechanical harvesting methods. This will include measures to transport, stockpile/dewater harvested weeds and transport to disposal or reuse sites in such a way as to minimise further spread of weeds.
[OO- 97] Plan or Install Aquatic Weed Protection Measures	<ul style="list-style-type: none"> Make provision for installation of barriers such as floating booms or containment fences to i) prevent spread of aquatic weeds; ii) possible intake into turbines (e.g. regulating dam); and iii) divert floating masses of aquatic weed that enter the reservoir in areas where they can be mechanically collected.
[OO- 98] Implement the Alien Invasive Aquatic Weed Management	<ul style="list-style-type: none"> As per defined requirements, timing or phasing of activities specified in the plan and in accordance with monitoring results confirming aquatic weed status (as per Section 0).
[OO- 99] Alien Aquatic Weed Management Contracts	<p>If aquatic weeds proliferate in the reservoirs, the following measures will be needed:</p> <ul style="list-style-type: none"> Removal, transport and disposal, and dedicated equipment and resources will be secured and in place to manage aquatic weeds during operation. This includes facilities for stockpiling aquatic weed in a designated area of sufficient size to accommodate the material to be removed) and paved transportation routes to minimise spread
[OO- 100] Biological	<p>If aquatic weeds require active management, the following will be considered and implemented:</p>



Control of Aquatic Weeds	<ul style="list-style-type: none"> • Implementation of biocontrol measures during the operation phase will include the following: <ul style="list-style-type: none"> - Release of weevils by trained staff based on the required risk assessment and permitting from the Department of Agriculture. - Monitoring of biocontrol effectiveness reflected by rate and extent of damage to hyacinth; - Adaptive management based on monitoring results, possibly including additional raising and release of more weevils periodically
[OO- 101] Mechanical Removal of Aquatic Weeds	<ul style="list-style-type: none"> • If aquatic floating weeds become a problem, implement mechanical dredging or harvesting of aquatic weeds commencing after filling from the start of operation to ensure more effective reduction in weed growth. • Aquatic weed harvested shall be removed from the reservoir and prevented from settling in the lake. This will minimise degradation of water quality (e.g. decreased dissolved oxygen or increased phosphate, nitrogen or ammonia), potential impacts on aquatic biota, especially fish, and habitat creation for bilharzia snails. • Access of the dredger/harvester in/out of the dam shall prioritise access on the left (east) bank to minimise disturbance within the proposed conservancy area on the right bank (Neno side). • Designate and create a paved laydown area near the side of the reservoir where aquatic weed can be spread and dried prior to transport. Harvested weed is heavy when full of water and drying can reduce its weight and volume. Water from drying areas shall be drained to an evaporation pond where new weeds can be removed. • Transport of aquatic weed shall be safely conveyed on a paved road to minimise spread.
[OO- 102] Disposal and Reuse of Aquatic Weeds	<ul style="list-style-type: none"> • Implement sustainable options for disposal and / or reuse of aquatic hyacinth based on findings and outcome of the feasibility study. • Re-use options, where viable, can significantly reduce landfill requirements and may have community / land use benefits.

5.15 Stakeholder Engagement and Grievance Redress Mechanism

Stakeholder engagement is a key element of the ESIA process defined by the requirements of the Lenders. The Stakeholder Engagement activities, including grievances management, are being implemented jointly by MHPL and the GoM PIU for the Project

A Draft Stakeholder Engagement Plan (SEP) has been developed and disclosed on the Project website in December 2023⁵. The SEP outlines the management and planning responsibilities of stakeholder engagement activities during the development, construction and operational phases of the Projects. It also sets out details of future meetings and consultations with Project Affected People (PAP) and interested stakeholders. The SEP documents how responses received will be recorded and considered. New stakeholders identified through the Project development and construction phases will be added and considered within the SEP.

Stakeholder engagement provides the basis for affected persons and communities to participate in the Project through awareness and sharing their feedback. It enables the incorporation of all relevant views of affected persons and other stakeholders into decision-making and Project implementation. The aim of the stakeholder engagement is to build a trusting relationship with the host communities and other interested stakeholders based on a transparent and timely supply of information and open dialogue.

⁵ <https://www.mpatamangahydro.com/index.php/download/draft-stakeholder-engagement-plan/>



The SEP will continue to evolve as the Projects progress through construction and operation. The SEP reporting the engagement process and its outcomes is being publicly disclosed as part of the submission of the ESIA documents.

The SEP include a grievance mechanism so that stakeholders and the public can raise any concerns, provide feedback and comments about the Project, company operations and how those complaints/comments will be handled. This Grievance Mechanism defined in the Project SEP is presented in Section 5.15.3 hereafter for the reader's convenience.

5.15.1 Stakeholder Identification and Mapping

The Project undertook a stakeholder mapping and analysis to prepare the 2023 Stakeholder Engagement Plan. Stakeholders that may be impacted by and/or who may have interest in and/or have influence over the Project were identified according to stakeholder type and category.

These categories included:

- Government ministries, departments, and agencies (MDAs) – national, regional or district.
- Traditional Leaders (Traditional authorities, group village heads, or village heads).
- Resettlement impacted communities (physical and/or economic displacement) (villages and group villages).
- Directly and indirectly impacted communities (villages and group villages, inclusive of community groups such as those focused on natural resource management) and the potentially vulnerable e.g. youth, female-headed households, child-headed households (if identified within the Project area), elderly, physically and/or mentally disabled, chronically ill, low literacy levels etc Civil society Organisations, including NGOs and Community-Based Organisations (CBOs).
- Faith-based organisations (FBOs).
- Other hydropower projects in Project area.
- Public sector, Private sector and/or Public Private Partnership (PPP) entities or programmes in the Project area.
- Media.
- International lending institutions.

These categories are used in the Stakeholder Engagement Plan presented in the next paragraphs.

In addition, MHPL has initiated in 2024 a community outreach programme to expand access to information for those who are unable to attend meetings due to reasons such as caring for ill relatives, having illnesses or disabilities themselves, or being unable to leave their business premises.

5.15.2 Stakeholder Engagement Plan

5.15.2.1 Documents to be Disclosed

The Documents do be publicly disclosed as well as the period of their disclosure is indicated in Table 5-1 below.

Table 5-1: Documents to be Disclosed



Documents	Disclosure Period or Frequency	Disclosure Methods
2024 supplementary E&S studies Dossier: <ul style="list-style-type: none"> • 2024 Non-Technical ESIA Summary (NTS); • 2024 ESIA report; • 2024 ESMMP; • 2024 Cumulative Impact Assessment (CIA); • 2024 Biodiversity Action Plan (BAP); • 2024 Resettlement Policy Framework (RPF), including executive Summary and Guide on Land Acquisition and Compensation (GLAC) • 2024 Stakeholder Engagement Plan (SEP) 	During the Lenders appraisal of the project, Q3-Q4 2024 The documents will remain publicly available on the Project website throughout construction and operation	<ul style="list-style-type: none"> • Disclosed on MHPL Website • Disclosed on Ministry of Energy Website • Hardcopies made available at the District Councils • Hard copies at the Project information centers
Regulatory MEPA ESIA	Q3-Q4 2024	<ul style="list-style-type: none"> • Disclosed on MEPA website • Disclosed on Ministry of Energy Website • Disclosed on MHPL Website • Hardcopies made available at the District Councils • Hard copies at the Project information centers
Newsletter in Chichewa and English (See section 5.16 'E&S Monitoring' of this ESMMP)	Six-monthly during construction and the first 3 years of operation, then annually	<ul style="list-style-type: none"> • Disclosed on MHPL Website • Disclosed on Ministry of Energy Website • Distributed in the local communities affected by the Project • Hard copies at the Project information centers
E&S Performance reports (See section 5.16 'E&S Monitoring' of this ESMMP)	Six-monthly during construction and the first 3 years of operation, then annually	<ul style="list-style-type: none"> • Disclosed on MHPL Website • Disclosed on Ministry of Energy Website • Hard copies available at the Project information centers, and at the Districts' Councils
E&S Compliance reports (See section 5.16 'E&S Monitoring' of this ESMMP)	Six-monthly during construction and the first 3 years of operation, then annually	<ul style="list-style-type: none"> • Disclosed by the Lenders as appropriate • Disclosed on MHPL Website • Hard copies at the Project information centers
External RAP monitoring reports (See section 5.45.4 'Resettlement' of this ESMMP)	Six-monthly reports from witness NGO to Mpatamanga Project Management (MHPL and PIU) and Lenders during the Phased RAP implementations	<ul style="list-style-type: none"> • Disclosed on MHPL website • Disclosed on Ministry of Energy Website • Hard copies at the Project information centers
Independent RAP Completion audit (See section 5.45.4 'Resettlement' of this ESMMP)	One for each of the four phased RAP: at least one year after payment of compensation, and no longer than 3 years after displacement of affected persons	<ul style="list-style-type: none"> • Disclosed on MHPL website • Disclosed on Ministry of Energy Website • Hard copies at the Project information centers

5.15.2.2 Stakeholder Engagement Programme

This Stakeholder Engagement Programme will be updated at the start of construction activities, and at the start of operation. It will then be updated annually.

Before the start of construction, the Project will establish two public information centers: one in Chaswanthaka village in Blantyre District and one in Feremu village in Neno District. All



information materials, including the 2024 E&S studies, will be available in hard copies at these information centers.



Table 5-2: Stakeholder Engagement Plan

Stakeholder Group		Pre-World Bank Board	Pre-Financial Close	Early Works and Construction	Operation
A People and Operators Potentially Affected by the Project	A1 Communities and Households Affected by the Project's Land Acquisition (Involuntary Resettlement): - Households physically displaced - Households economically displaced - Host Communities - Businesses affected (Ranches around the main reservoir and main works)	<ul style="list-style-type: none"> • In the villages affected by main works and main reservoir: <ul style="list-style-type: none"> ▪ Establishment of the Village-level Resettlement Working Groups ▪ public meetings between July and Oct. 2024 to present the ESIA and RPF • Households affected by the Early Works RAP: <ul style="list-style-type: none"> ▪ Community Sensitisation meetings in July 2024, ▪ Establishment of Village Grievance Redress Committees and village level Resettlement Working groups ▪ Public meetings to disclose the Early Works RAP in Q4 2024 (Group village level) <p>> Monthly and quarterly meetings hold by MHPL and the GoM PIU</p>	<p>> Early Works RAP: Individual disclosure of compensation schedules</p> <p>> Main works: Community Sensitisation, Disclosure of the Main Works RAP and individual disclosure of compensation schedules</p> <p>> Quarterly Stakeholder Meetings</p>	<p>> Quarterly Stakeholder Meetings</p> <p>> Six-monthly newsletter in Chichewa distributed in the villages</p> <p>> Transmission Lines RAP: Community Sensitisation meetings (Group village level), disclosure of the TL RAP and of the compensation Schedule (village level) and individual disclosure of compensation packages to the affected persons</p> <p>> Main Reservoir RAP : Community Sensitisation meetings (Group village level), disclosure of the TL RAP and of the compensation Schedule (village level) and individual disclosure of compensation packages to the affected persons</p>	<p>> During the first 3 years of operation: Six-monthly newsletter in Chichewa distributed in the villages. After the first 3 years of operation, the newsletter in Chichewa will be distributed annually.</p> <p>> Quarterly meetings for the first year of operations</p> <p>> Annual 'open-house' visits of the Mpatamanga HPP</p> <p>> Ad-hoc and Informal meetings as required</p>
	A2 Communities and Households Affected by Impacts and Risks other than the Project's Land Acquisition around the Project components - main reservoir, main works, S137 road works, 400kV and 132 kV transmission lines	<p>> Regulatory ESIA public hearings if and as required by MEPA</p> <p>> Monthly and quarterly meetings hold by MHPL and the GoM PIU</p>	<p>> Quarterly Stakeholder Meetings</p>	<p>> Quarterly Stakeholder Meetings</p> <p>> Public meetings in each village prior to start of construction activities</p> <ul style="list-style-type: none"> - Schedule and progress of construction activities - Status of the Local Recruitment Plan and the Traffic Management Plan <p>> Ad hoc public meetings to announce in advance any heavy construction activity (for instance blasting) or any activity potentially affecting traffic</p> <p>> Six-monthly newsletter in Chichewa distributed in the villages</p>	<p>> Public meeting in each village to announce the start of operation and disclosed the updated SEP and Grievance mechanism for operation, as appropriate.</p> <p>> ad hoc meetings as needed to announce in advance important operation activities (for instance reservoir drawdown periods for maintenance)</p> <p>> Dam safety and Emergency exercises</p> <p>> During the first 3 years of operation: Six-monthly newsletter in Chichewa distributed in the villages. After the first 3 years of operation, the newsletter in Chichewa will be distributed annually.</p>



Stakeholder Group	Pre-World Bank Board	Pre-Financial Close	Early Works and Construction	Operation
<p>A3 Downstream Communities and Households Affected by Impacts and Risks other than the Project's Land Acquisition</p> <ul style="list-style-type: none"> - Households farming and fishing in the Shire River floodplain downstream of the regulating dam, between the Kapichira Dam and the confluence with the Mwanza River - Households residing within 20 m along the right bank of the Shire River in Chikwawa, within 1 km upstream of the Chikwawa Bridge - Chikwawa Town 	<ul style="list-style-type: none"> > Regulatory ESIA public hearings if and as required by MEPA > Monthly and quarterly meetings hold by MHPL and the GoM PIU 			<ul style="list-style-type: none"> > Public meeting in each village to announce the start of operation and disclosed the updated SEP and Grievance mechanism for operation, as appropriate. > ad hoc meetings as needed to announce in advance important operation activities (for instance reservoir drawdown periods for maintenance) > Dam safety and Emergency exercises
<p>A4 Economic Operators Affected by impacts and risks other than the Project's Land Acquisition:</p> <ul style="list-style-type: none"> - Power Production: EGENCO, for existing hydropower plants (HPP) along the Shire River: Upstream (Tedzani and Nkula HPPs) and Downstream (Kapichira HPP) - Power transport: ESCOM for the existing lines and the Mozambique-Malawi (MoMa) interconnection, and as future operator of the Mpatamanga transmission lines - Conservation Management: Management authorities of the Majete Wildlife Reserve - Tourism operators: Robin Pope Safaris – Majete Wildlife Reserve, and African Parks (AP) - Mkulumadzi Lodge - Sugar Estate with pumping stations extracting water from the Shire River downstream of the regulating dam (Presscane, Illovo Sugar Cane, Agricane) - Extractive industries operators: existing mining or oil and gas operators with concessions encroaching onto the reservoir footprint 	<ul style="list-style-type: none"> > Regulatory ESIA public hearings if and as required by MEPA > Monthly and quarterly meetings hold by MHPL and the GoM PIU 	<ul style="list-style-type: none"> > regular engagement as part of E&S Action Plans implementation > Six-monthly newsletter in Chichewa distributed 	<ul style="list-style-type: none"> > Regular engagement as part of E&S Action Plans implementation > Six-monthly newsletter in Chichewa distributed 	<ul style="list-style-type: none"> > Public meeting in each village to announce the start of operation and disclosed the updated SEP and Grievance mechanism for operation, as appropriate. > ad hoc meetings as needed to announce in advance important operation activities (for instance reservoir drawdown periods for maintenance) > Dam safety and Emergency exercises (as appropriate) > During the first 3 years of operation: Six-monthly newsletter in Chichewa distributed in the villages. After the first 3 years of operation, the newsletter in Chichewa will be distributed annually.



Stakeholder Group		Pre-World Bank Board	Pre-Financial Close	Early Works and Construction	Operation
	A5 Economic operators affected by nighttime effects (light pollution) - Tourism operators: Robin Pope Safaris – Majete Wildlife Reserve, and African Parks (AP) - Mkulumadzi Lodge			> Present and implement the monitoring process to assess nighttime effects > Discuss with the lodge owners to agree a solution if light pollution caused by the Project is observed from the Mkulumadzi Lodge / Starbed	> Continue the monitoring to assess nighttime effects > Discuss with the lodge owners to agree a solution if light pollution caused by the Project is observed from the Mkulumadzi Lodge / Starbed
B Local Authorities	B1 District Local Government (District Council (DC) Office) - Blantyre District, Neno District, Chikwawa District, Balaka District - District Office Specialised Services, Units or Committees Social Welfare Service: Land Service, Agricultural Service, Victim Support Units, Gender Officers, Environmental Sub-Committees	> Regulatory ESIA public hearings if and as required by MEPA > Participation in the establishment of the District-level Resettlement Working Groups in Blantyre and Neno District > Quarterly Stakeholder Meetings	> Quarterly Stakeholder Meetings > six-monthly E&S Performance reports in Chichewa and in English > District-level Resettlement Working Groups meetings as required. > Six-monthly newsletter in Chichewa distributed	> Participation in the establishment of the District-level Resettlement Working Groups in Balaka District at the start of the preparation of the RAP for the 400kV transmission line. > Quarterly Stakeholder Meetings > six-monthly E&S Performance reports in Chichewa and in English > Six-monthly newsletter in Chichewa distributed	> Annual Stakeholder Meetings during the first 5 years of operation > During the first 3 years of operation: Six-monthly newsletter in Chichewa distributed in the villages. After the first 3 years of operation, the newsletter in Chichewa will be distributed annually. > During the first 3 years of operation: six-monthly E&S Performance reports in Chichewa and in English. After the first 3 years of operation, annual Frequency
	B2 Traditional Authorities (TA) and Groups of Village Heads (GVH) - Blantyre District: TA Kunthembwe, TA Kuntaja - Neno District: TA Mlauli, TA Symon - Balaka District: TA Phalula - Chikwawa District: TA Kasisi, TA Chikwawa Boma	> Regulatory ESIA public hearings if and as required by MEPA > Participation in the establishment of the District-level Resettlement Working Groups in Blantyre and Neno District > Quarterly Stakeholder Meetings	> Quarterly Stakeholder Meetings > six-monthly E&S Performance reports in Chichewa and in English > Six-monthly newsletter in Chichewa distributed	> Quarterly Stakeholder Meetings > six-monthly E&S Performance reports in Chichewa and in English > Six-monthly newsletter in Chichewa distributed	> Update of the SEP for operation, to include downstream communities as requirement, based on further assessment of downstream erosion of riverbanks and incision of riverbed > During the first 3 years of operation: Six-monthly newsletter in Chichewa distributed in the villages. After the first 3 years of operation, the newsletter in Chichewa will be distributed annually. > During the first 3 years of operation: six-monthly E&S Performance reports in Chichewa and in English. After the first 3 years of operation, annual Frequency



Stakeholder Group		Pre-World Bank Board	Pre-Financial Close	Early Works and Construction	Operation
	B3 Village or Grassroots Level Committees - Village: Development Committees (VDCs), Natural Resources Management Committees (VNRMCs), Area Development Committees (ADCs), Beach Committees. - Community Conservation Area Committees (Elephant Marsh)	> Regulatory ESIA public hearings if and as required by MEPA	> Six-monthly newsletter in Chichewa distributed in the villages	> Six-monthly newsletter in Chichewa distributed in the villages	> During the first 3 years of operation: Six-monthly newsletter in Chichewa distributed in the villages. After the first 3 years of operation, the newsletter in Chichewa will be distributed annually. > Update of the SEP for operation, to include downstream communities, based on further assessment of downstream erosion of riverbanks and incision of riverbed
C Governmental Ministries, Departments and Agencies	C1 Regulators and Project Partners - Ministry of Natural Resources, Energy and Environment (MNREE) - Malawi Environmental Protection Authority (MEPA) - National Water Resources Authority (NWRA) - Ministry of Lands - Malawi Energy Regulatory Authority (MERA) - Ministry of Transport and Public Works and Roads Authority - Department of Museums and Monuments - Ministry of Education, Ministry of Health, Ministry for Water and Sanitation & Southern Region Water Office	> Regulatory ESIA public hearings if and as required by MEPA	> Reporting to the MEPA and other Regulators on project activities and monitoring/mitigation activities as provisioned in the Conditions attached to the 2024 Environmental Certificate	> Reporting to the MEPA and other Regulators on project activities and monitoring/mitigation activities as provisioned in the Conditions attached to the 2024 Environmental Certificate	> Reporting to the MEPA and other Regulators on project activities and monitoring/mitigation activities as provisioned in the Conditions attached to the 2024 Environmental Certificate
	C2 Governmental Agencies (National and Regional MDAs)	> Regulatory ESIA public hearings if and as required by MEPA	> regular engagement as part of ESMMP implementation	> regular engagement as part of ESMMP implementation	
	C3 Government Emergency Services - Police and Fire Departments - Chikowa Health Centre - Chimemebe Health Centre - Queen Elizabeth Community Hospital (QECH) - Neno District Hospital - Chifunga Health Centre - Luwani Health centre - Tedzani Health Centre - Dziwe Health Centre - Victim Support Unit (Chileka)	> Regulatory ESIA public hearings if and as required by MEPA	> regular engagement as part of E&S Action Plans implementation > six-monthly E&S Performance reports in Chichewa and in English	> regular engagement as part of E&S Action Plans implementation > six-monthly E&S Performance reports in Chichewa and in English	> Dam safety and Emergency exercises (as appropriate)



Stakeholder Group	Pre-World Bank Board	Pre-Financial Close	Early Works and Construction	Operation
D Other Future Large Infrastructure Projects	> Regulatory ESIA public hearings if and as required by MEPA	> Engage as required for Cumulative Impacts Management	> Engage as required for Cumulative Impacts Management	> Engage as required for Cumulative Impacts Management
E Non-Governmental Agencies - International Accountability Project and Coalition for Human Rights - Conservation NGOs - Human Rights NGOs - Faith Based Organisations (FBO)	> Regulatory ESIA public hearings if and as required by MEPA	> six-monthly E&S Performance reports in Chichewa and in English	> six-monthly E&S Performance reports in Chichewa and in English	> During the first 3 years of operation: six-monthly E&S Performance reports in Chichewa and in English. After the first 3 years of operation, annual Frequency
F Academic and Research Institutions	> Regulatory ESIA public hearings if and as required by MEPA	> six-monthly E&S Performance reports in Chichewa and in English	> six-monthly E&S Performance reports in Chichewa and in English	> During the first 3 years of operation: six-monthly E&S Performance reports in Chichewa and in English. After the first 3 years of operation, annual Frequency
G Donors, Lenders and Investors	> Appraisal of the 2024 E&S Supplementary Studies and the regulatory MEPA ESIA	> Six-monthly E&S Compliance report	> Six-monthly E&S Compliance report	> During the first 3 years of operation: Six-monthly E&S Compliance report. After the first 3 years of operation, annual Frequency



5.15.2.3 Grievance Redress Mechanism

The Mpatamanga HPP Grievance Redress Mechanism (GRM) is defined in the Project Stakeholder Engagement Plan (MHPL, 2023). RAP-related grievances will be managed through the Project GRM.

The Project aims to address all grievances received, whether they stem from real or perceived issues. The Project seeks to foster trust in the GRM process and its outcomes. It will therefore communicate the Project GRM in an understandable manner to affected stakeholder groups. Confidentiality will be respected, and the Project will take all reasonable steps to protect parties to the process from any retaliation that may occur due to complainants' decision to use the Project GRM to resolve a grievance.

Grievances could arise with regards to any aspect of the Project, including but not limited to the following:

- Measurement of land and other assets for communities that are to be directly affected;
- Changes in access to natural resources e.g. rivers, forest etc;
- Potential impacts on farming, fishing, and other livelihoods;
- Delays in resettlement and perceived unfair compensation and other support measures;
- Proposed resettlement sites and housing options;
- Changes in water and air quality;
- Impacts on cultural or religious sites;
- Confusing or insufficient information about the Project;
- Potential impacts to roads, schools, or other infrastructure.

Any person, or group, can make a complaint and the issue will be handled with respect. A grievance can be defined as an actual or perceived problem that might give grounds for complaint.

5.15.3 Grievances Management Process

The Project GRM has the objective of helping third parties to avoid resorting to the judicial system for as many grievances as possible. This mechanism includes three successive tiers of extra-judicial amicable grievance review and resolution: (i) the first is the Village Grievance Redress Committee, (ii) the second is the Project Grievance Redress Committee and (iii) the third is the Grievance Review Board. The next paragraphs describe these three tiers.

Complainants can resort to judiciary channels at any time. The three-tier process does not deter them from doing so.

5.15.3.1 First Tier - Group Village Grievance Redress Committees

Group Village Grievance Redress Committees (GVGRCs) are formed under the Project at a Group Village Headman (GVH) level in directly impacted communities in proximity to Project infrastructure. These act as the first tier of grievance redress to resolve grievances which may emanate at the community level. The GVGRC members appoint a chairperson and a secretary. The committees consist of the following members:

- Village Head.
- Village Development Committee (VDC) representative (or equivalent) .
- Natural Resources Management Committee (NRMC) member.
- Child Protection Officer.
- Community Policing representative.
- Women's representative.
- Youth representative.
- Project-Affected Person (PAP) – male.



- Project-Affected Person (PAP) – female.
- Extension worker (representative of District Council).
- Religious organisations' representative/s (from religious group/s active within the community).

GVGRC roles and responsibilities include but are not limited to:

- 'Channel' or 'Access Point' for receipt of Project-related feedback from affected communities.
- Receive and screen community queries, concerns, complaints and grievances in accordance with the screening processes outlined in the MHPP GRM. This includes:
 - Referring all incidents and emergencies, and gender-based violence (GBV) and sexual exploitation and abuse (SEASH) issues immediately to the nominated pathways; and
 - Referring grievances that are not within the jurisdiction of the Committee and/or the MHPP GRM to the appropriate authority.
- Address community queries and potential grievances immediately where possible; using information documented in MHPP Frequently Asked Questions (FAQs).
- Record grievances in a MHPP Grievance Registration form, when requested by a Complainant.
- Sensitise affected communities about the MHPP GRM and the GVGRC roles and responsibilities related to the GRM.
- As required, assist in the investigation and resolution of grievances related to the MHPP.
- Participate in MHPP Grievance Review Board (GRB) meetings, only as required and only those members whose community role is relevant to the specific category of grievance being reviewed.
- Distribute official MHPP GRM contact cards and other official GRM awareness-raising materials, as required. E.g. Project Newsletters, Project Brochures.

The GVGRC Chairperson role and responsibilities are:

- To compile two weekly logs: i) a Community Feedback Log; ii) a Grievance Log that summarise information provided immediately by GVGRC members to address community queries and potential grievances.
- To meet weekly with MHPL Grievance Officers and/or Community Liaison Officers to:
- To provide MHPP weekly community feedback and grievance logs.
- To provide completed MHPP grievance redress forms.
- To open the Suggestion Boxes and provide the completed forms or other feedback to the MHPL Grievance Officer and/or MHPL Community Liaison Officer to take and screen.

To commence the implementation of the Project Grievance Redress Mechanism, the following activities were jointly undertaken by MHPL and the GoM PIU:

- November 2022: Election of Group Village Grievance Redress Committees (GVGRC) in each of the five directly impacted Group Villages identified to date.
- December 2022: Development of grievance reporting management forms, training materials and training of Group Village Grievance Redress Committees (GVGRCs)
- April 2023: Refresher training for the GVGRCs.

At the time of writing, the Mpatamanga HPP has established five Group Village Grievance Redress Committees (GVGRCs) and two GVGRC Sub-committees in Blantyre and Neno Districts (MHPL, 2024). They are indicated in Table 5-3 below. Additional GVGRCs will be established when needed along the S137 Road works and the 400kV and 132kV transmission lines routes.



Table 5-3: GVGRC established in 2023

District	Traditional Authority	GVH	GVGRC #	Main villages represented in the GVGRC
Blantyre	TA Kunthembwe	GVH Kaliati	1 – GVGRC GVH Kaliati	Mpindo, Inosi, Chaswanthaka, Lisangwi, Chilaulo
			2 – GVGRC GVH Kaliati sub-committee	Mbwinja, Divala
		GVH Namputu	3 – GVGRC GVH Namputu	Chinkwinya, Chimpanda, Namputu, Chikira, Mwazilinga
Neno	TA Mlauli	GVH Feremu	4 – GVGRC GVH Feremu	Feremu, July, Kambalame
			5 – GVGRC GVH Feremu sub committee	Nkwali
		GVH Nsalawatha	6 – GVGRC GVH Nsalawatha	Nsalawatha, Chikaya, Liyenda, Joathan, Liwonde
		GVH Ngwenyama	7 – GVGRC GVH Ngwenyama	Mbemba, Nkoka, Joseph (1 and 2)

5.15.3.2 Second Tier – Project Grievance Redress Committee

The Project Grievance Redress Committee (PGRC) comprises key members from the Project Implementation Unit (PIU) and Mpatamanga Hydro Power Limited (MHPL), alongside community representatives.

The PGRC's composition includes:

- Social Safeguards Specialist – Ministry of Energy PIU
- Environmental Safeguards Specialist - Ministry of Energy PIU
- Mpatamanga Hydro Power Project Desk Officer - Ministry of Energy
- Regional Lands Desk Officer for MPHPP – Ministry of Lands PIU
- Malawi Environment Protection Agency Desk Officer for MPHPP – PIU
- Environmental and Social Coordinator – MHPL
- Consultation and Stakeholder Management Coordinator – MHPL
- Environmental Lead – MHPL
- Community Liaison Officers – MHPL
- Chairperson GVGRC (from the Group Village where the grievance originates – if needed)
- Secretary Village Level Committee (from the Group Village where the grievance originates – if needed)
- A Committee member as needed (from the Group Village where the grievance originates – if needed)

The Roles and Responsibilities of the PGRC are outlined hereafter:

- Reviewing grievances submitted through the established channels.
- Participating in investigations and assessing findings.
- Identifying resolution and mediation measures.
- Resolving and addressing grievances referred from the community level.
- Assigning grievances to Responsible Parties for resolution.
- Communicating resolutions to complainants formally and verbally.
- Referring unresolved grievances to the PGRB.
- Building capacity of GVGRC on Grievance Redress Mechanism (GRM) and crosscutting issues.
- Reporting all complaints/grievances handled at community and project levels to the PGRB.
- Documenting the status and resolution of complaints.



The MHPL and PIU convene weekly (online and in-person where possible) to discuss grievances and decide on necessary actions.

The PIU and MHPL members of the PGRC hold weekly meetings to:

- Receive reports from the Community Liaison Officer (CLO) on recorded grievances.
- Review grievances referred to the committee for resolution.
- Co-opt other members based on the grievances under consideration.

Meeting Procedures:

- Chairperson: The Social Safeguards Specialist chairs the committee.
- Secretary: The Consultation and Stakeholder Management Coordinator serves as the committee secretary.
- Chairperson Responsibilities: Presides over meetings, ensures proper conduct, and administers rules and regulations. In the chairperson's absence, an interim chairperson presides.
- Secretary Responsibilities: With the CLO's assistance, calls meetings, takes minutes, circulates signed minutes, and files them.
- Quorum: Two-thirds of committee members eligible to attend constitute a quorum.
- Transparency and Accountability: The committee enforces these principles in all its affairs.
- Complainant Attendance: Depending on the case, complainants or their representatives may be requested to attend hearing sessions but may be excused during other meetings.
- Updates on Grievances: Regular updates on grievances referred to Responsible Parties are provided to track progress on resolution.

5.15.3.3 Third Tier – Grievance Review Board

The Grievance Review Board is made of MHPL and the GoM PIU, including representative of the relevant line ministries. The Grievance Review Board meets as needed to discuss grievances which have not been solved at the first tier of resolution by the Village Grievance Redress Committees.



5.15.3.4 Access Points for Raising a Grievance

The Project GRM considers communities' literacy levels and focuses on in-person interaction with complainants using Chichewa, and/or other relevant local languages, in addition to English; to ensure that processes, decisions, and outcomes are clearly understood.

There are a number of “channels”, or access points, which can be used by community members and other stakeholders to submit feedback – questions, comments, concerns and/or complaints – regarding the Project. These are summarised in Table 5-4 below.

Table 5-4: GRM Access Points

Modality	Access Point
In person:	<ul style="list-style-type: none"> • To a GoM PIU or MHPL representative; e.g. during their visits to local communities. • At regular MHPP stakeholder engagement meetings; for example MHPP Monthly Community Engagement Meetings and Quarterly Stakeholder Engagement Meetings. • At the GoM PIU (Ministry of Energy office in Lilongwe) or MHPL (Blantyre + Site offices): <ul style="list-style-type: none"> ▪ Ministry of Energy, 2nd floor, Capital House, City Center, Lilongwe 3. ▪ MHPL Addresses: <ul style="list-style-type: none"> ▪ Headquarters: 16, 17 and 18 on First Floor, Almira Complex at Plot Number BC1114, Mandala, Blantyre. ▪ Site Office: S137, near Main Dam site, Blantyre District. • To Village focal points; specifically, members of a Group Village Grievance Redress Committees (GVGRCs).
By phone (call, SMS, WhatsApp):	<ul style="list-style-type: none"> • <u>To GoM PIU</u>: +265 1 770 688. • <u>To MHPL</u>: 4265 (Toll Free Number) or 0886 595 369 (Airtel) or 0886 595 369 (TNM). • To members of a Group Village Grievance Redress Committees (GVGRCs).
In writing:	<ul style="list-style-type: none"> • By placing a completed GRM Form or written letter in an MHPP Suggestion Box. These are currently located in directly impacted villages in Blantyre and Neno Districts. Each Box is held by a GVGRC member however boxes are opened by MHPL Grievance Officers; for reasons of confidentiality. • By email to the GoM or MHPL: <ul style="list-style-type: none"> ▪ GoM Email: info@energy.gov.mw ▪ MHPL Email: info@mpatamangahydro.com • By mail to the GoM or MHPL: <ul style="list-style-type: none"> ▪ GoM Postal Address: Ministry of Energy, Private Bag 309, Lilongwe 3, MALAWI. ▪ MHPL Postal Address: P.O. Box 886 Blantyre, MALAWI. • Via the GoM or MHPL websites: <ul style="list-style-type: none"> ▪ GoM website: www.energy.gov.mw ▪ MHPL website: www.mpatamangahydro.com • to Village focal points and/or other members of Project GVGRCs.



To provide feedback or to raise questions or concerns about the Mpatamanga HPP, the affected persons or the general public can contact MHPL or the Government of Malawi using the following contact details:

<p>MHPL Contact Details:</p> <p>Mobile/WhatsApp: Toll free code: 4265 Airtel: +265 986 643 212 TNM: +265 886 595 369</p> <p>E-mail: info@mpatamangahydro.com</p> <p>Mail: P.O. Box 886 Blantyre, Malawi</p> <p>Office: 16, 17 and 18 on First Floor, Almira Complex at Plot Number BC1114, Mandala, Blantyre</p> <p>Website: www.mpatamangahydro.com</p>	<p>Government of Malawi Contact Details:</p> <p>Mobile/WhatsApp: Airtel: +265 999 138 270 or +265 999 922 356</p> <p>E-mail: info@energy.gov.mw austin.theu@energy.gov.mw khumbolungu@gmail.com</p> <p>Mail: P/Bag 309 Lilongwe 3, Malawi</p> <p>Office: Second Floor, Capital House, Robert Mugabe Crescent, City Centre, Lilongwe</p> <p>Website: www.energy.gov.mw</p>
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5.16 Environmental & Social Monitoring

5.16.1 Objective, Timeframe, Responsibilities, Performance Criteria

Objective	Monitoring of key environmental (water, vegetation, river fish) and social (health, revenues) indicators is carried out and deviations are detected for the implementation of corrective actions	
Timeframe	Construction:	Operation:
Component	<ul style="list-style-type: none"> • MON. 1 Air quality • MON. 2 Noise levels • MON. 3 River water quality • MON. 4 Reservoir water & sediment quality • MON. 5 Ground water quality • MON. 7 Fauna • MON. 9 Aquatic Biomonitoring • MON. 11 Fish • MON. 12 Alien invasive plants • MON. 14 Rehabilitation success • MON. 16 Flow variations • MON. 17 Climate • MON. 18 Groundwater yields and levels • MON. 19 Land use • MON. 20 Local price inflation • MON. 21 Reservoir Fisheries • MON. 22 Community health • MON. 23 Fence breach • MON. 24 Employment • MON. 25 RAP progress • MON. 26 LRP progress • MON. 27 Influx • MON. 28 Light pollution • MON. 29 Reservoir triggered seismicity • MON. 30 Future flooding events 	<ul style="list-style-type: none"> • MON. 3 River water quality • MON. 4 Reservoir water & sediment quality • MON. 5 Ground water quality • MON. 6 River geomorphology • MON. 7 Fauna • MON. 8 Birds • MON. 9 Aquatic Biomonitoring • MON. 10 Waterborne disease vectors • MON. 11 Fish • MON. 12 Alien invasive plants • MON. 14 Rehabilitation success • MON. 15 Reservoir Shore erosion • MON. 16 Flow variations • MON. 17 Climate • MON. 18 Groundwater yields and levels • MON. 19 Land use • MON. 20 Local price inflation • MON. 21 Reservoir Fisheries • MON. 22 Community health • MON. 23 Fence breach • MON. 25 RAP progress • MON. 26 LRP progress • MON. 27 Influx • MON. 28 Light pollution • MON. 29 Reservoir triggered seismicity • MON. 30 Future flooding events
Project Activity	All	
Responsibility	MHPL	

5.16.2 Monitoring Actions during Construction and Operation

[OC- 212] Screen existing capacities	<ul style="list-style-type: none"> • Review MHPL team capacity and capabilities to develop, execute and report on all or part of the environmental and social monitoring activities described in Table 5-5 below. • Recruit to reinforce the monitoring team, as required; • Scope, select, and retain the services of qualified persons or firms to undertake specialist monitoring, such as monitoring of fisheries, community health, light pollution.
[OC- 213] Plan and procure monitoring resources	<ul style="list-style-type: none"> • Establish a monitoring annual work plan, with clear responsibilities between activities to be executed by MHPL employees, and activities to be executed by external resources, whether for field surveys (e.g. sampling), analysis (e.g. laboratory) or reporting (e.g. dedicated software). • Procure the required monitoring equipment and consumables (e.g. reagents) • Initiate targeted training and capacity building.
[OC- 214] Execute Monitoring activities	<ul style="list-style-type: none"> • Execute monitoring activities based on the guiding principles described in Table 5-5. • Report on monitoring result as per guiding principles described in Section 5.16.3.



Table 5-5: Environmental and Social Monitoring Plan

Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
Environment				
MON. 1 Air quality	Quarries: <ul style="list-style-type: none"> Particulate matters (PM) Dust 	As required during construction, e.g. following complaints or ad 'hoc measurements	<ul style="list-style-type: none"> Portable device for in situ measurement 	Settlements within 1km from the quarries
MON. 2 Noise levels	<ul style="list-style-type: none"> Noise level (dB), including at night if and when relevant 	<ul style="list-style-type: none"> As required during construction, e.g. following complaints or ad 'hoc measurements At commissioning of facilities/infrastructures 	<ul style="list-style-type: none"> Sound meter 	<ul style="list-style-type: none"> At relevant sensitive receptor location, e.g. settlements, northern boundary of the Majete WR Operator's village, powerhouses and switchyards and at the northern boundary of the Majete WR
MON. 3 River water quality	<ul style="list-style-type: none"> Temperature, pH, Conductivity Dissolved oxygen (DO), TDG supersaturation Total phosphorus, Phosphates Turbidity, Total suspended solids Ammonia, Nitrate, Total alkalinity, Nitrite Organic carbon, BOD, COD Chlorophyll-a Benzene, Toluene, Ethylbenzene, Xylene (BTEX) EPA Priority Pollutant Metals (PP-13*) Total coliforms, Faecal coliforms 	<ul style="list-style-type: none"> Six-monthly over a period of one year prior to the start of construction. This will establish the baseline river water quality baseline. Monthly during construction. Quarterly during operation for the first 3 years of operation Subsequent years: Six-monthly <p>TDG monitoring will be discontinued if TDG is not observed during the first year of operation.</p>	ISO, USEPA or similar	Shire River: <ul style="list-style-type: none"> 500 m upstream from main reservoir immediately downstream of the regulation reservoir 3 km downstream from the main dam 20 km downstream from the main dam 40 km downstream from the main dam (temperature, DO and TDG only) 60 km downstream from the main dam (temperature, DO and TDG only) 80 km downstream from the main dam (temperature, DO and TDG only)
MON. 4 Reservoir water & sediment quality	Reservoir water <ul style="list-style-type: none"> Temperature, pH Dissolved oxygen Total phosphorus Turbidity Phosphates Total suspended solids Sediment <ul style="list-style-type: none"> EPA Priority Pollutant Metals (PP-13*) Pesticides 	Reservoir water <ul style="list-style-type: none"> Weekly during reservoir filling Quarterly for the first 3 years of operation Subsequent years: January (high seasonal flow) and September (low seasonal flow) Sediment <ul style="list-style-type: none"> Heavy metals: EPA PP-13 metal concentrations will be monitored annually. Pesticides: Prior to the start of construction, pesticide concentrations in the sediment of the Nkula and Tedzani reservoirs will be measured using a laboratory equipped to measure AZECC EQS levels. If pesticides above EQS levels are detected, pesticide levels in the 	ISO, USEPA or similar	Reservoir water <ul style="list-style-type: none"> 3 depths: surface, mid-depth and bottom at 3 locations: Upper and middle reaches and at proximity to the main dam Sediment <ul style="list-style-type: none"> Upper and middle reaches and at proximity to the main dam



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
		Mpatamanga reservoir sediment will be monitored annually.		
MON. 5 Ground water quality	<ul style="list-style-type: none"> pH, Conductivity Total phosphorus, Phosphates Turbidity, Total suspended solids Ammonia, Nitrate, Total alkalinity, Nitrite Organic carbon Benzene, Toluene, Ethylbenzene, Xylene (BTEX) EPA Priority Pollutant Metals (PP-13*) Total coliforms, Faecal coliforms 	<ul style="list-style-type: none"> Monthly, starting 1 year before start of construction and continuing during construction. Twice yearly: January and September during operation 	ISO, USEPA or similar	<ul style="list-style-type: none"> Adjacent to main dam Adjacent to the regulation dam Adjacent to the main powerhouse Village boreholes (see MON 18. Below)
MON. 6 River geomorphology	Main Reservoir Tail River Channel Bathymetry	Annually during Project's operating life.	ADCP or similar.	<ul style="list-style-type: none"> Lisungwe tributary between M6 road bridge and confluence with the Shire River (inc. in main reservoir). Shire River between Tedzani HPP and confluence with the Lisungwe tributary (inc. in Mian Reservoir).
	Downstream River Channel Bathymetry	<ul style="list-style-type: none"> During Project's operating life. Spatially variable frequency: i) annually between the regulating reservoir and Chikwawa Bridge; ii) every 2-5 years between Chikwawa Bridge and Elephant Marsh. 	<ul style="list-style-type: none"> ADCP or similar. Complemented with ground survey / drone photogrammetry survey of riverbanks (minimum. 20 m bank width). 	<ul style="list-style-type: none"> Between the regulating reservoir and Chikwawa Bridge (approx. 20 cross-sections / short reaches). Between Chikwawa Bridge and Elephant Marsh (approx. 20 cross-sections / short reaches).
	Floodplain Lakes Bathymetry	<ul style="list-style-type: none"> During Project's operating life. Spatially variable frequency associated with identified risk: i) annually for Lake Gumbwa / upstream of Chikwawa Bridge; ii) every 2-5 years for Lake Lisulu / downstream of Chikwawa Bridge. 	<ul style="list-style-type: none"> ADCP or similar. Complemented with ground survey / drone photogrammetry survey of lake margins (minimum. 20 m bank width). 	<ul style="list-style-type: none"> Lake Gumbwa. Lake Lisulu. Other strategic floodplain wetland locations (tbc).
	Riverbank Erosion	<ul style="list-style-type: none"> During Project's operating life. Frequency dependant on assessment method. 	<ul style="list-style-type: none"> Monthly visual assessment. Annual assessment based on remote-sensed satellite imagery. LiDAR / drone photogrammetry DTM survey frequency based on annual assessment (typically every 2-5 years). 	<ul style="list-style-type: none"> Monthly assessment at "high-risk" locations (including upstream Chikwawa Bridge and dewatered reach opposite main powerhouse tailrace). Annual assessment to include "high-risk" locations, reach between the regulating reservoir and Chikwawa Bridge, and river meanders between Chikwawa Bridge and Elephant Marsh. LiDAR / drone photogrammetry DTM survey locations based on annual assessment & identification of high-risk locations.



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
MON. 7 Fauna	Presence of trapped animals against fencelines	Construction phase: While installing fences, especially near regulating dam infrastructure	Deploy game scouts to be present during fence installation to look for animals that may be trapped within fence lines and need search and rescue.	In and around fence lines near regulating dam to Majete WR
	Presence of stranded animals during reservoir filling, especially around regulating reservoir	Reservoir filling: 2-3 weeks during and just after reservoir filling Operation: Routine checks for 2 years (to be continued if incidents are reported in the second year)	Deploy game scouts to walk perimeter of regulating dam with binoculars. Record incidents in wildlife tracker.	Around regulating reservoir
MON. 8 Birds	Presence of bird carcasses under the 132kV and 400kV transmission line	Weekly along 132 kV and southern half of 400kV for two years, reducing to monthly if no evidence of carcasses found	Walked surveys to search and record (photos and GPS points) any carcasses or evidence of feathers.	<ul style="list-style-type: none"> 132kV entire line 400kV southern portion of line (30 km)
MON. 9 Aquatic Biomonitoring	<ul style="list-style-type: none"> Diatoms Macroinvertebrates Instream & riparian vegetation Integrated Habitat Integrity (IHI) 	Pre-construction-Operation: Annually (dry season: July-November) commencing one year pre-construction	<ul style="list-style-type: none"> Diatom collection and lab analysis Sweep netting (SASS) Observations & fixed-point photography (riparian & instream vegetation) IHI 	To be confirmed: Upstream (control) and downstream sites in Shire River aligned with EcoSocial sites (including Lower Shire) and water quality and sediment sampling sites.
MON. 10 Waterborne disease vectors	<ul style="list-style-type: none"> Bilharzia snails Mosquito larvae Blackfly 	Operation: Annually (dry season: July – November)	<ul style="list-style-type: none"> Snail searches in marginal vegetation and inspection for cercariae Sweep netting 	<ul style="list-style-type: none"> Reservoir margins Dewatered reach Immediate downstream regulating dam
MON. 11 Fish	<ul style="list-style-type: none"> Presence and abundance of fish (catch per unit effort) Presence of abrasions and visible surface parasites Presence of alien invasive fish species 	Construction: Annually, commencing one year pre-construction Operation: <ul style="list-style-type: none"> Commencing from reservoir filling. Annually for first 3 years of operation. Thereafter, frequency to be determined. Potentially every two years from year 5 to 15 Potentially every 5 years after year 15. 	<ul style="list-style-type: none"> Electrofishing (reservoir and river margins) Cast netting (Netting with boat on reservoirs) Examination of fisher catches 	<ul style="list-style-type: none"> Riverine sites: to be confirmed (as for Aquatic Biomonitoring above) Reservoir: Selected sites along length of reservoirs from tail end to dam walls Future monitoring can potentially reduce sampling sites to more focussed area e.g. Majete reach and selected sites in Lower Shire (to be determined from initial surveys).
MON. 12 Alien invasive plants	Presence and extent of alien invasive terrestrial and aquatic plants in and around construction sites and ponds created during construction	<ul style="list-style-type: none"> Construction: Weekly throughout construction and post construction liability phase Operation: Monthly inspections around reservoir margins 	<ul style="list-style-type: none"> Driven and walked surveys to record with GPS & camera specific nodes of alien plant spread for management. Records and management actions taken to be logged 	Construction: <ul style="list-style-type: none"> In / around construction sites Along project roads used for earthmoving Quarries and topsoil stockpiles
				Operation: <ul style="list-style-type: none"> Reservoir margins Construction sites (as above)



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
MON. 13 Waterborne Disease Host	<ul style="list-style-type: none"> Bilharzia host snail monitoring 	<ul style="list-style-type: none"> Biannual surveys (coinciding with other biomonitoring tasks) 	<ul style="list-style-type: none"> Active checks for host bilharzia snails attached to marginal vegetation. Snails found shall be collected, placed in water overnight, and water samples inspected using a lab microscope to confirm the presence of cercariae. Records documented in biannual monitoring report. Results will be correlated with health data from nearby clinics or other survey data collected for local communities. 	<ul style="list-style-type: none"> Reservoir margins and particularly in side channels and where aquatic weeds accumulate
MON. 14 Rehabilitation success	Vegetation recovery on construction rehabilitated areas	<ul style="list-style-type: none"> Construction & post liability: Weekly inspections (linked to alien invasive plant monitoring) Operation: Monthly inspections of restoration sites 	<ul style="list-style-type: none"> Driven and walked site inspections to record proportion of bare ground and natural plant restoration success. 	Temporary construction sites
MON. 15 Reservoir Shore erosion	Reservoir Bank Erosion	<ul style="list-style-type: none"> During Project's operating life. Frequency dependant on assessment method. 	<ul style="list-style-type: none"> Monthly visual assessment. Annual assessment based on remote-sensed satellite imagery. LiDAR / drone photogrammetry DTM survey frequency based on annual assessment (typically every 2-5 years) 	<ul style="list-style-type: none"> Main reservoir – monthly assessment at “high-risk” locations; annual assessment for whole of reservoir margin (& to provide feed-back loop for identification of high-risk locations). Regulating reservoir – monthly assessment at “high-risk” locations; annual assessment for whole of reservoir margin (& to provide feed-back loop for identification of high-risk locations). LiDAR / drone photogrammetry DTM survey locations based on annual assessment & identification of high-risk locations.
MON. 16 Flow variations	Shire River Water Level	<ul style="list-style-type: none"> Measurements to start minimum 1-year prior to construction. Continuously monitored and recorded at minimum 5-minute interval. Twice daily manual check readings`. Measurements to continue through construction and for the duration of the project's operating life. 	<ul style="list-style-type: none"> Use of ISO / WMO-168 standards. Continuous WL monitoring method (e.g., pressure transducer, FMCW radar) dependent on site conditions. Daily manual check readings via safely visually accessible graduated vertical or ramp/inclined staff gauge(s). 	<ul style="list-style-type: none"> Continuous WL monitoring upstream FSL extent of Main Reservoir on Shire River and Lisungwe River Continuous WL monitoring downstream Regulation Reservoir (located upstream of Majete WR northern fence) Continuous WL monitoring at Chikwawa Bridge
	Reservoir Water Level	<ul style="list-style-type: none"> Measurements to start prior to reservoir filling. Continuously monitored and recorded at minimum 5-minute interval. Twice daily manual check readings`. 	<ul style="list-style-type: none"> Use of ISO / WMO-168 standards. Continuous WL monitoring method (e.g., pressure transducer, FMCW radar) 	<ul style="list-style-type: none"> Main reservoir dam wall upstream face Regulating reservoir dam wall upstream face



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
		<ul style="list-style-type: none"> Measurements to continue through construction and for the duration of the project's operating life. 	<ul style="list-style-type: none"> dependent on detailed review of site conditions. Daily manual check readings via safely visually accessible graduated vertical or ramp/inclined staff gauge(s). 	
	Shire River Flow	<ul style="list-style-type: none"> Measurements to start prior to construction. Frequency dependent on stability of stage-discharge rating relationship: First year twice monthly to establish initial rating relationship; years 2-5 monthly; thereafter frequency defined in annual rating review reports. Measurements to continue through construction and for the duration of the project's operating life. 	<ul style="list-style-type: none"> Use of ISO / WMO-168 standards. Flow measurement method (e.g., ADCP, current meter) dependent on site conditions. Flow measurement method to include measurement of channel cross-section. 	<ul style="list-style-type: none"> Flow measurement upstream FSL extent of Main Reservoir on Shire River and Lisungwe River – via cableway if current meter method adopted. Flow measurement downstream Regulation Reservoir (located upstream of Majete WR northern fence) – via cableway if current meter method adopted. Continuous flow measurement at Chikwawa Bridge – via bridge / cableway if current meter method adopted.
	Reservoir Level-Storage Relationship	<ul style="list-style-type: none"> Measurements to start within 2 years of start of operation. Frequency dependent on stability of level-storage relationship; typically every 2-5 years. 	<ul style="list-style-type: none"> LiDAR / drone photogrammetry DTM survey. Surveyed ground control points (GCPs). DTM RMSE not to exceed +/- 15 cm. 	<ul style="list-style-type: none"> Main reservoir over normal operational range of WL (e.g., within 0.5 m of FSL) Regulating reservoir over normal operating range (e.g., between MOL and FSL)
	Floodplain Lakes Water Level	<ul style="list-style-type: none"> Measurements to start minimum 1-year prior to construction. Continuously monitored and recorded at minimum 5-minute interval. Twice daily manual check readings. Measurements to continue through construction and for the duration of the project's operating life. 	<ul style="list-style-type: none"> Use of ISO / WMO-168 standards. Continuous WL monitoring using pressure transducer. Daily manual check readings via safely visually accessible graduated vertical or ramp/inclined staff gauge(s). 	<ul style="list-style-type: none"> Lake Gumbwa. Lake Lisulu. Other strategic floodplain wetland locations (tbc).
MON. 17 Climate	Climate Station: Precipitation; Temperature; Relative Humidity; Wind Speed; Sunshine; Evaporation	<ul style="list-style-type: none"> Measurements to start prior to reservoir filling. Continuously monitored and recorded at minimum 5-minute interval. Twice daily manual check readings. Measurements to continue through construction and for the duration of the Project's operating life. 	<ul style="list-style-type: none"> Use of ISO / WMO-168 / WMO-8 standards. Method dependant on specific indicator. 	<ul style="list-style-type: none"> Main dam Regulating dam Downstream floodplain near Chikwawa
	Groundwater Yield	<ul style="list-style-type: none"> Before reservoir filling 	Test pumping of water supply boreholes	Within 1,000 m of main reservoir



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
MON. 18 Groundwater yields and levels	Middle Shire Groundwater Levels	<ul style="list-style-type: none"> Measurements to start prior to reservoir filling and to continue for the duration of the Project's operating life. Continuous recording. 	Pressure transducer with associated solid-state recording.	At water level monitoring boreholes (approx. 50 m deep) at various distances from the main reservoir on both riverbanks near water supply boreholes; intersecting fault zones at depth, along the perimeter of the main reservoir, from the Mpatamanga HPP site to upstream areas near the Lisungwe tributary confluence with the Shire River and the Tedzani HPP, where settlements and water supply boreholes are located near the reservoir.
	Lower Shire Groundwater Levels	<ul style="list-style-type: none"> Measurements to start prior to reservoir filling and to continue for the duration of the Project's operating life. Continuous recording. 	Pressure transducer with associated solid-state recording.	At circa. 50-100 water level monitoring wells in Lower Shire floodplain at various distances from Shire River on both riverbanks in reach between Kapichira Reservoir and Elephant Marsh, including adjacent to Lake Gumbwa and Lake Lisulu.
	Lower Shire Soil Moisture Content	<ul style="list-style-type: none"> Measurements to start prior to reservoir filling and to continue for the duration of the Project's operating life. Continuous recording. 	TDT-multi-segment Soil Moisture Profiling Probe with associated solid-state recording.	At circa. 50-100 locations in Lower Shire floodplain at various distances from Shire River on both riverbanks in reach between Kapichira Reservoir and Elephant Marsh, including adjacent to Lake Gumbwa and Lake Lisulu.
Social				
MON. 19 Land use	<ul style="list-style-type: none"> Reinstatement/Revegetation Progress of areas disturbed during the construction period. % of vegetation coverage, % affected by erosion pattern Areas in m² per type of land use, and change in land use in % around project facilities (loss of habitats, increased settlements) 	<ul style="list-style-type: none"> Six-monthly during construction, starting in early in 2025 Every 2 years during operation, starting one year after the commencement date, for the first 10 years of operation. 	Production of GIS-based maps based on recent high resolution satellite imagery	<ul style="list-style-type: none"> Areas opened or disturbed for construction purposes, e.g. site installations, camps, parking areas, disposal and borrow areas, quarry area, cut and fill areas, access roads used only for construction 2 km from each side of reservoirs, reservoirs areas, resettlement sites, transmission lines' right of way, upgraded roads
MON. 20 Local price inflation	Local price of land, construction material, housing, food, and fuel,	Bi-annual survey during construction and the first two years of operation (to be extended as required)	<ul style="list-style-type: none"> High-level market survey Interviews with key informants, including with Departments of Blantyre District 	<ul style="list-style-type: none"> High-level market survey at Chikuli Market (TA Kunthembwe, Blantyre District) and Chifunga Market (TA Mlauli, Neno District) Interviews with key informants in the affected communities Departments of Blantyre district in relation with structures, land, trees, crops
MON. 21 Reservoir Fisheries	<ul style="list-style-type: none"> Reservoir fisheries to confirm potential extent of fish stock for sustainable fishery 	<ul style="list-style-type: none"> Quarterly once reservoir filled Biannual after fish community stabilises (pending early monitoring results) 	<ul style="list-style-type: none"> Netting from boat and shoreline Catch per unit effort (CPUE) Size and weight of different species including any alien fish Inspection of any local fisher catches 	<ul style="list-style-type: none"> Different parts of the reservoirs from dam wall to tail end



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
MON. 22 Community health	KAPB (Knowledge, Attitude, Practices and Behaviour) for Communicable Diseases	<ul style="list-style-type: none"> Baseline established through the Cross-sectional BHS prior to construction 2 KAPB surveys: Survey #1 at construction year 4. Survey #2 at operation year 3 	Household survey (~200 households)	Communities served by the 5 local health facilities (Chikowa, Chimemebe, Dziwe, Luwani, Chifunga)
	Prevalence (Malaria, Bilharzia, Intestinal worms, Malnutrition, NCD (hypertention, diabetes)	<ul style="list-style-type: none"> Baseline established through the cross-sectional BHS prior to construction 2 prevalence surveys: Survey #1 at construction year 4. Survey #2 at operation year 3 	Biomedical survey through mobile clinics (biophysical indicators, blood tests, therapeutic areas) for the surveyed households	Communities served by the 5 local health facilities (Chikowa, Chimemebe, Dziwe, Luwani, Chifunga)
	Accessibility of safe water	<ul style="list-style-type: none"> Baseline established through the cross-sectional BHS prior to construction 2 surveys (Year 4 of construction and Year 3 of operation) 	<ul style="list-style-type: none"> Water quality sampling of existing collection points (borehole, river) and in water containers at household level Between 10 to 20 water sources and households 	Communities around the 2 Mpatamanga reservoirs
	Incidence (longitudinal) of TB, Diarrheal disease, Acute Respiratory Infection, HIV/STIs, Nutrition, NCDs (blood pression, diabetes)	<ul style="list-style-type: none"> On-going initiative Comes monthly on to-be-done database 	<ul style="list-style-type: none"> Project will support the establishment of database through HSS initiative. Data collected through Health Partners and community health workers through incentive system (e.g. smartphone, airtime) MoU with Ministry of Health to access the database 	Communities served by the 5 local health facilities (Chikowa, Chimemebe, Dziwe, Luwani, Chifunga)
MON. 23 Fence breach	Fencing integrity	Weekly during operation	Visual observations during patrols	<ul style="list-style-type: none"> Fence from the main dam to downstream of the main powerhouse on Blantyre side Fence from the main dam to the regulating dam on Neno Side Additional fencing, if any
MON. 24 Employment	Number of positions and working hours offered to local community members	Bi-annual surveys during construction	Local employment register from EPCs	EPCs
MON. 25 RAP progress	<ul style="list-style-type: none"> Accomplishments to-date. Number of compensation agreements signed. Number and amount of compensation paid Number and nature of resettlement assistance activities conducted, and number of 	Monthly	<ul style="list-style-type: none"> On-site surveys Financial records RAP database Human Resources 	Project Affected Communities in GVH Kaliati, GVH Namputu, and GVH Mzigala; and in Neno District: GVH Feremu, GVH Nsalawatha and GVH Ngwenyama



Receptor	Indicator to be monitored	Timing & Frequency	Method	Location / Sampling Points
	affected people participating in these activities • Objectives attained and not attained during the period • Problems encountered			
MON. 26 LRP progress	• Number and nature of livelihood restoration activities conducted, and number of affected people participating in these activities • Objectives attained and not attained during the period • Problems encountered			
MON. 27 Influx	Number of migrants settling in the communities	Bi-annual surveys during construction and the first five years of operation (to be extended as required)	Data collected through local authorities and Police Imagery and counting of new buildings	Communities along the S137 and around the two reservoirs and close to Majete Wildlife Reserve (GVH Kaliati, GVH Gwadani,, GVH Kunthembwe, GVH Kadikira, GVH Feremu)
MON. 28 Light pollution	Nighttime effect	Quarterly survey during the first construction year and the first year of operation	Visual observation	Mkulumadzi Lodge ‘Star-bed’
MON. 29 Reservoir triggered seismicity	Number of seismic events	During reservoir filling and during the 5-first year of operation	Seismograph	Main reservoir
MON. 30 Future flooding events	Frequency, duration and extent of floods	Events to be recorded throughout the Project’s operating life	Flow variation (see MON. 16)	Between Kapichira and 11km downstream of the Chikwawa Bridge
(*) PP-13: (Sb) Antimony, (As) Arsenic, (Be) Beryllium, (Cd) Cadmium, (Cr) Chromium, (Cu) Copper, (Pb) Lead, (Ni) Nickel, (Se) Selenium, (Ag) Silver, (Tl) Thallium, (Zn) Zinc, and (Hg) Mercury				



5.16.3 Reporting and Public Disclosure

5.16.3.1 Construction

<p>[OC- 215] Reporting disclosed to public</p>	<ul style="list-style-type: none"> • As described in Section 5.15 (Stakeholder Engagement Plan), prepare and distribute locally the six-monthly newsletter in local language. • Prepare and disclose on internet the six-monthly ESHS Performance reports in Chichewa and in English that summarizes the following information during the reporting period: <ul style="list-style-type: none"> ▪ Project construction activities and update of the construction schedule. ▪ Environmental monitoring activities and results: water quality, hydrology, groundwater, land use, socio-economic, river fish. ▪ Trend for downstream riverbed incision, riverbank erosion, floodplain groundwater and lakes and wetland levels. ▪ Social or community development initiatives undertaken by the Project. ▪ Interaction with stakeholders, including meeting or other initiatives to engage with members of the public or public organisations, civil society, communities, including vulnerable groups. ▪ Main issues raised in the complaints or grievances and how they were resolved. ▪ Number of direct employees, contracted workers and temporary workers recruited and dismissed, whether international, national or from the two valleys. ▪ Number of job opportunities for local people and for women; opportunities for women owned or managed companies to be involved in local procurement skills training; and community initiatives under the CIP that benefit women.
<p>[OC- 216] Reporting to Lenders</p>	<ul style="list-style-type: none"> • Six-monthly E&S Compliance report: Prepare semi-annual report in form and scope satisfactory to the Lenders, on environmental and social matters arising in relation to the Project or which may affect the Project. The report could be structured as follows: <ul style="list-style-type: none"> ▪ General: (i) Project update, (ii) Summary of environmental and social performance, including an update on Environmental and Social Commitment Plan (ESCP) and this ESMMP implementation status to help the Lenders review MHPL’s compliance with the applicable E&S laws and the Lenders E&S policies. For actions with delays, reasons for the delays or changes and actions planned to meet the requirements and estimated completion date for the action. ▪ Core questions: (i) new environmental, social or gender issues which were not foreseen during the 2024 ESIA stage, (ii) accidents or incidents that have caused damage to the environment, affected cultural property, or created liabilities for MHPL, (iii) exceedances of the emission and discharge standards that apply to the Project, and (iv) court cases filed against MHPL which are related to labour, health & safety, environment, land acquisition, damage to third party assets. ▪ Human resource management: (i) local/national recruitment or dismissal, redundancy plans, workers grievances, strikes or collective disputes, (ii) health and safety data including any accidents / incidents that have happened to employees or third parties, training, audits, road traffic collisions, and remedial actions to any newly identified health or safety issue. ▪ Land Acquisition Process: progress made in the implementation of the RAP, using the monitoring indicators as detailed in the RAP. Results of any other related monitoring carried out by MHPL. ▪ Stakeholder engagement: progress made in the implementation of the SEP, including meetings to engage with communities and public organisations, any coverage in media on E&S issues related to the project, and interaction with any environmental or other community groups. Grievances not solved during the timeframe established in the Grievance Redress Mechanism. ▪ Local Area Development Programme: Social or community development initiatives undertaken by the project during the reporting period, and



	<p>associated expenditure. Comment on whether/how the community has input into the selection of initiatives to be supported.</p> <ul style="list-style-type: none"> ▪ Non-conformities of level 2 or level 3 from the EPC Contractors. ▪ Change Management Procedure: changes in design or in operating procedure proposed during the reporting period which could have potential E&S implications - Screening actions, environmental and social assessment, mitigation measures decided and status of implementation. ▪ Labour audit arrangements and reporting on contractor, subcontractor and service provider compliance with national, Lenders and ILO requirements. ▪ Project Incident Notification: In case of incident during Project implementation with fatality (e.g. vehicle accident, explosion, fall) or without fatality (e.g. strikes or other collective disputes related to working conditions, spill, major natural hazard): (i) Inform immediately by email the Lenders safeguard specialists; (ii) Describe the incident: What has happened and when; How many fatalities/injured, what were their ages, gender; Identify their relationship such as employee, contractor, member of the public; What is known to date about the damage to the environment or community health and safety; Are there effects off-site to the public or the environment; What was the cause of the incident/accident if known; What kind of follow-up investigation is being conducted.
<p>[OC- 217] Reporting to Environmental Authorities</p>	<ul style="list-style-type: none"> • Report to the MEPA on project activities and monitoring/mitigation activities as provisioned in the Conditions attached to the 2024 Environmental Certificate.

5.16.3.2 Operation

<p>[OO- 103] Reporting disclosed to public</p>	<ul style="list-style-type: none"> • Same reporting as for the Construction period • Frequency is six-monthly during the first three years of operation and then annual.
<p>[OO- 104] Reporting to Lenders</p>	<ul style="list-style-type: none"> • Same reporting as for the Construction period. • Frequency is six-monthly during the first three years of operation and then annual.
<p>[OO- 105] Reporting to Environmental Authorities</p>	<ul style="list-style-type: none"> • Report to the MEPA on project activities and monitoring/mitigation activities as provisioned in the Conditions attached to the 2024 Environmental Certificate.



6 Measures Under the Responsibility of Governmental Agencies

6.1 Overview

The Government of Malawi, either directly or through governmental agencies or operator, will:

- Finance and lead on the land acquisition and resettlement associated with the Project (Section 6.2),
- Monitor of E&S Conditions in the Environmental Permit (Section 6.3),
- Commission an independent third-party Gender Based Violence (GBV) monitoring organisation to independently monitor and report on the effectiveness of GBV measures to prevent and mitigate GBV risks associated with the Project (Section 6.4).
- Operate and maintain local socio-economic facilities (e.g. road improvements, water supply, health, education) (Section 6.5),
- Operate the Phombeya substation and associated transmission lines (Section 6.6),
- Contribute to the Project's stakeholder engagement and management and resolution of grievances (Section 6.7),
- Undertake a Cultural Heritage Impact Assessment of the Project Components yet to be surveyed (e.g. transmission lines and the S137 road works) and to define and implement a Graveyards Relocation Plan (Section 6.8)
- Facilitate or commission studies on climate changes and consequences on the Shire River (Section 6.9),
- Ensure watershed and transboundary coordination/dialogue (Section 6.10).

6.2 Resettlement, Land Acquisition and Compensation

The construction and operation of the Project will require resettlement, land acquisition and restriction of land use. These resettlement, land acquisition and restriction of use could induce adverse impacts for the affected households. A Resettlement Policy Framework (RPF) has been prepared as part of the 2024 ESIA. The RPF sets out a framework by which the impacts associate with land acquisition will be mitigated and how compensation will be made. Responsibilities for the preparation and implementation of the phased Resettlement Action Plans are distributed between the GoM and MHPL.

This section summarises the GoM management actions relating to the RAP process (see Table 6-1). MHPL Management actions for the RAP are presented in Section 5.4 of this 2024 ESMMP.

The objective, timeframe and project activities are the same as those outlined in Section 5.4.

Responsibilities:

- The land acquisition and compensation process is managed jointly by MHPL and the GoM.
- All compensation (in cash or in-kind) will be paid by the GoM, using funds from the World Bank, and the GoM will develop the resettlement assets (land titling plan, levelling, access roads, lighting, water supply, replacement houses), as this development is necessary for the provision of in-kind compensation (i.e. replacement land and replacement housing),
- The GoM will delegate to MHPL, acting as Owner's Engineer, the management of the construction of the resettlement sites, the replacement housing and the public



infrastructures affected by the Project. This includes: planning, designing, procurement of construction contractor(s), and supervision of the construction works.

- The livelihood restoration program and monitoring will be funded and implemented by MHPL

Table 6-1: Actions from the PIU for Resettlement Process Management

Phase	Management Action	Tasks
Pre-Construction	[GC 1] Prepare the four phased RAPs	<ul style="list-style-type: none"> • Together with MHPL Social Team, prepare the four phased RAP for each Project Component based on: <ul style="list-style-type: none"> ▫ Obtained land take drawings from MHPL technical team or EPC Contractors, including optimised land requirements in order to minimise involuntary resettlement impacts, ▫ Entitlement matrix and compensation framework defined in the 2024 RPF, • Together with MHPL Social Team, establish and disclose a cut-off date for each phased RAP, • Together with MHPL Social Team, at the cut-off date time, demarcate the land take areas to identify the lands to be acquired, or where restriction of access or use will apply. • Delegate to MHPL the activities necessary to the provision of in-kind compensation: <ul style="list-style-type: none"> ▫ Develop the Chaswanthaka and Kambalame Resettlement sites in a timely manner. ▫ Identify available replacement land for the assisted self-relocation in affected villages. • Together with MHPL Social Team, harmonise each phased RAP with the provisions of the sub-plans of this ESMMP, as and when appropriate (Detailed Design, Influx, Community Health, Community Safety, Gender-based Violence and Harassment, Biodiversity, Local Area Development Plan, Reservoir Zoning and Fisheries, Stakeholder Engagement, Cultural Heritage)
Pre-Construction	[GC 2] Obtain Approvals	<ul style="list-style-type: none"> • Publish and gazette the Notice to acquire land as per the Land Acquisition Act. • Together with MHPL Social Team, submit the Phased RAP to the Lenders for approval. • Together with MHPL Social Team, submit the Compensation Schedule for each phased RAP to the Ministry of Lands for Approval. • Ensure notices to vacate the lands are issued by the Ministry of Justice in a timely manner to the affected persons before the start of construction activities
Pre-Construction	[GC 3] Mobilise resources for the RAP process	<ul style="list-style-type: none"> • Mobilise the Project Implementation Unit during the preparation and implementation of the phased RAPs • Coordinate the activities of relevant GoM parties involved in the RAP processes (Ministry of Energy, Ministry of Lands, Ministry of Finance, Ministry of Justice, Ministry of Transport and Public Works, Districts councils and Districts Officers, Department of Museums and Monuments) and ensure their representatives are mobilised in a timely manner for the RAP activities
Pre-Construction	[GC 4] Consultation with affected communities and persons	<ul style="list-style-type: none"> • Together with MHPL Social Team, establish District-level and Group-Village level Resettlement Working Groups (RWG) <ul style="list-style-type: none"> ▫ Disclose the RAP approach, objectives, principles and measures to the RWG ▫ Consult with the RWG as appropriate ▫ Mobilise the RWG as appropriate to facilitate the preparation of the phased RAPs (establishment of cut-off dates, identification of land owners, resolution of grievances as appropriate)



Phase	Management Action	Tasks
		<ul style="list-style-type: none"> • Together with MHPL Social Team, consult the affected persons throughout the RAP preparation: <ul style="list-style-type: none"> ▪ Inform the affected communities in advance of the start of the Phased RAP process preparation through Community Sensitisation Meetings ▪ During the data collection, engage the affected persons and community in a gender-inclusive manner, and include engagement with vulnerable groups as appropriate. ▪ Disclose the draft and final Phased RAPs and the compensation packages to the affected communities and affected persons ▪ Disclose the compensation schedule to the affected persons ▪ Document the process: agreed compensation package, willingness of affected persons to move, documents signed by the parties. • Together with MHPL Social Team, establish Grievance Redress Committees in the Group Villages affected and register, manage and resolve grievances in a documented manner
Pre-Construction	[GC 5] Payment of compensation and provision of resettlement assistance	<ul style="list-style-type: none"> • Together with MHPL, identify Financial Institutions for payment of compensations to affected persons • Approve the Compensation Schedules • Together with MHPL, sign compensation agreements with the affected persons, • Provide compensation in cash and in-kind and resettlement assistance measures, as defined in the RPF. • Obtain land rights and grant access to land for construction activities in a timely manner

6.3 Monitoring of E&S Conditions in the Environmental Permit

At the time of writing, MHPL was yet to submit the 2024 ESIA to MEPA. Consequently, MEPA was yet to award the environmental clearance and the list of conditions associated with the environmental permit. Once this is done, MEPA will supervise the effective compliance of the Project with these conditions during the construction and operation periods. Actions are as in Table 6-4.

Table 6-2: Actions from the PIU for Ownership and Maintenance for Local Socio-Economic Facilities

Phase	Management Action	Tasks
Construction	[GC 6] Monitor effective implementation of conditions included in Environmental Certificate	<ul style="list-style-type: none"> • Verify timely and qualitatively submission of activity progress and monitoring reports from MHPL. • Review project documentation and ensure compliance with condition listed in the permits. • Conduct regular monitoring site inspections.



6.4 Third Party Gender-Based Violence Monitor

High risks of Gender-based violence are identified, and MHPL will implement a Gender-Action Plan to prevent and manage cases of GBV.

In compliance with the World Bank Good Practice Note on Addressing GBV in Investments Project Financing involving Major Civil Works (World Bank, 2018), an independent third-party GBV monitoring organisation will be commissioned by the GoM PIU to independently monitor and report on the effectiveness of GBV measures to prevent and mitigate GBV risks associated with the Project. Actions are as in Table 6-4.

Table 6-3: Actions from the PIU for Third Party Gender-Based Violence Monitoring

Phase	Management Action	Tasks
Construction	[GC 7] Independent Third-Party GBV Monitor during construction	<ul style="list-style-type: none"> The role of the independent third-party GBV monitor is not to track, investigate or follow up on individual cases of GBV—that is the role of the GBV Services Provider, which also ensures confidentiality for the survivor. The independent third-party GBV monitor will confirm that all project actors, including the GBV Services Provider are implementing the GBV prevention measures. They will verify that the provisions to prevent and respond to GBV are in place and functioning, and also can provide early warning of problems that may surface. The PIU will select and commission an experienced Third-Party Gender-Based Violence Monitor before the start of construction activities. The Third Party Gender-Based Violence Monitor will prepare quarterly monitoring reports, from the start of construction activities and throughout the construction period. The quarterly Third Party Gender-Based Violence Monitor will be submitted by the PIU to the world Bank.
Operation	[GO 1] Independent Third-Party GBV Monitor during first year of operation	<ul style="list-style-type: none"> The Third Party Gender-Based Violence Monitor will prepare quarterly monitoring reports, during the first year of operation The quarterly Third Party Gender-Based Violence Monitor will be submitted by the PIU to the world Bank.

6.5 Ownership & Maintenance of Community Investment Initiatives

Part of the investments funded by the Local Area Development Plan (See Section 5.13) will be handed over to the Districts, other investments may be handed over to governmental agencies depending on their jurisdictions. Actions are as in Table 6-4.

Table 6-4: Actions from the PIU for Ownership and Maintenance for Local Socio-Economic Facilities

Phase	Management Action	Tasks
Construction	[GC 8] Assist Districts in determining ownership of investments which should be transferred to Governmental	<ul style="list-style-type: none"> Depending on jurisdictions, governmental agencies identified with MHPL as ultimate owner of local investments funded by the LADP should be involved from the start of the examination to agree on scope and timing for implementation and taking over of the investment. Work jointly with MHPL to establish the Memorandum of Understanding on ownership and maintenance responsibilities.



Phase	Management Action	Tasks
	agencies or local authorities	<ul style="list-style-type: none"> • Mobilize the resources required to maintain the LADP-funded initiative over the long term.

6.6 Transmission Lines Maintenance Monitoring

ESCOM will operate the Phombeya substation and associated transmission lines. Actions are as in Table 6-5.

Table 6-5: Actions from ESCOM for the E&S Management of the Transmission Lines

Phase	Management Action	Tasks
Operation	[GO 2] Tls inspection and maintenance monitoring	<ul style="list-style-type: none"> • Regular inspections are essential for identifying issues and planning maintenance. Develop a proactive maintenance program of the 400kV and 132kV transmission line infrastructures that includes: <ul style="list-style-type: none"> ▪ i) monthly inspection of warning signs and (barbed wire) barriers installed on each of the 400kV and 132kV transmission line towers to check that they are present and in good condition. ▪ ii) twice yearly inspection of each transmission line towers to check their integrity and identify early signs of equipment degradation. ▪ Absence of structures and spontaneous informal settlements in the wayleaves • Engage support from local authorities as needed. • Plan appropriate repair and maintenance activities

6.7 Stakeholder Engagement and Grievances Management

The Project Stakeholder Engagement activities, including grievances management, are being implemented jointly by MHPL and the GoM PIU for the Project. The Project Stakeholder Engagement Plan and Grievance Management Process before Lenders board review, before Financial Close, during construction and during operation is outlined in Section 5.15 ‘Stakeholder Engagement’. Activities specific to the GoM regarding these activities are indicated in Table 6-6 below.

Table 6-6: Actions from the PIU for Stakeholder Engagement Management

Phase	Management Action	Tasks
Construction	[GC 9] Mobilisation of Stakeholder Engagement resources during construction	<ul style="list-style-type: none"> • Allocate and mobilise resources from GoM PIU and other GoM agencies as appropriate for the Stakeholder Engagement activities during construction • Allocate and mobilise resources from GoM PIU and other GoM agencies as appropriate for Grievances Management activities during construction • Before the start of construction and throughout construction, the GoM PIU will: <ul style="list-style-type: none"> ▪ Participate in the Project Stakeholder Engagement Activities and Grievance Redress Mechanism, and ▪ Organise, coordinate and supervise the participation of all GoM agencies or representatives to be involved and/or mobilised for



		the Project Stakeholder Engagement Activities and Grievance Redress Mechanism
Operation	[GO 3] Mobilisation of Stakeholder Engagement resources during operation	<ul style="list-style-type: none"> • At the start of Operation, the GoM PIU will participate in the update of the SEP, by: <ul style="list-style-type: none"> ▪ Identifying the key GoM representatives or agencies to be involved in Stakeholder Engagement Activities, and Grievances Management Activities during operation ▪ Involving these the key GoM representatives or agencies in the update of the SEP, by defining standard operating procedures and distribution of responsibilities between them and MHPL for the SEP and GRM management and implementation • The key GoM representatives or agencies will then allocate and mobilise resources as appropriate and when needed throughout operation for the Project Stakeholder Engagement and Grievances Management processes.

6.8 Cultural Heritage

The Department of Museums and Monuments is responsible for performing a Cultural Heritage Impact Assessment of the Project Components. Cultural Heritage impact have been identified in the main reservoir and regulating reservoir: Archaeological sites and graveyards are affected. At the time of writing, the transmission lines and the S137 road works, as well as the operator’s village and the construction camp in the main works area have not been surveyed. The DoMM is also responsible to assess the impacts on graveyards, and to define and implement a Graveyards Relocation Plan. Responsibilities are listed in Table 6-7 below.

Table 6-7: Actions from DOMM for Cultural Heritage Management

Component	Management Action	Tasks
Cultural Heritage Impacts Management	[GC 10] Cultural Heritage Impact Assessment along the S137 road and 400kV and 132kV transmission lines	<p>The Department of Museum and Monuments will perform Cultural Heritage Impact Assessments for the land take areas not yet surveyed at the time of writing, in coordination with the RAP process (transmission lines, S137 road, other land take areas not yet defined). These Cultural Heritage Impact Assessments will be: Performed in compliance with the requirement of World Bank ESS8 and IFC PS8</p> <p>Prepared and submitted to the GoM PIU and shared with MHPL during the corresponding RAP preparation (Early Works RAP, Main Works RAP and Transmission Lines RAP)</p> <p>The DoMM investigations on cultural heritage will be gender-inclusive and gender sensitive and will identify of gender differentiated element of cultural heritage affected (for instance graveyards for young infants managed by mothers only).</p>
	[GC 11] Cultural Heritage Management	<p>All significant archaeological sites located in the main reservoir will be mapped and sampled collected as instructed by the DoMM. The archaeological sites may then be destroyed after the DoMM has issued a destruction permit.</p>
Affected Graveyards Relocation	[GC 12] Graveyards Impact Assessment and Relocation Plan	<p>The DoMM will perform additional investigation to confirm the cemeteries and individual graves identified in the main Reservoir and main Works areas and identify appropriate replacement sites for the affected cemeteries with the participation of the affected communities.</p> <p>The DoMM will ensure that the new sites for the graveyards are located at least 250m away from any water course.</p> <p>The DoMM will identify affected graves and graveyards along the S137 works and the 400kV and 132 kV TL.</p> <p>Proper consultation with community members as well as regulatory bodies will be carried out by the DoMM prior to</p>



Component	Management Action	Tasks
		<p>exhumation. Aspects to consider during the consultation are (i) how the materials should be handled, (ii) who should be involved or present during the relocation processes, (iii) what, if any, ceremonies should be performed and who should perform these, (iv) where should the features be relocated to; and (v) how they should be managed in their new location, including the purchase of items needed for ceremonies</p> <p>The DoMM will document all findings into Graveyards Impacts Assessment and Relocation Plan, including a detailed budget and distribution of responsibilities, and submit it to the GoM PIU and MHPL in a timely manner MHPL during the corresponding phased RAP preparation.</p>
	[GC 13] Graveyards Relocation Implementation	<p>The GoM PIU will obtain necessary permits to have the grave exhumed and relocated (specifically the graveyards located in the reservoir area) will be obtained. Relatives or next of kin of the deceased individual will be searched. If locating family members or next of kin proves unsuccessful, a notice of intent will be submitted to the relevant TA along with copies to the then District Commissioner of the area where the grave is located.</p> <p>Before the flooding of the main reservoir, and in parallel with the main reservoir RAP, the DoMM will establish the new cemeteries at their new site before exhuming the remains</p> <p>The DoMM will give adequate notice before the exhumation and reburial of the remains</p> <p>The DoMM will then oversee and supervise the relocation of the affected graveyards in their new location.</p>

6.9 Climate Change

The 2024 Climate Resilience Assessment undertaken as part of the 2024 ESIA (see Chapter 10 of the ESIA) made several recommendations aiming at better understanding and anticipating the effects of climate change on the Shire River and associated water uses, including hydropower. Some of these recommendations are meant to be implemented by GoM. They are listed in Table 6-8 below.

Table 6-8: Recommendations Resulting from the 2024 Climate Resilience Assessment

Targeted Risk	Topic	Recommended Measure
Increase probability of extreme event occurrence due to climate change	Study on cyclonic events	[GC 14] During the construction, a study on cyclonic events will be undertaken to evaluate the impact of past cyclonic events on Lake Malawi's water level, assess midterm and long-term trends in cyclonic event occurrence considering climate change, understand the hydrological consequences of each event, and enhance cyclonic event risk management.
Inflow reduction due to increased temperature and potential precipitation reduction due to climate change	Study on Kamuzu Barrage Operation	[GC 15] Prior to the commissioning, a study will be undertaken to refine best practices for Kamuzu barrage operation, optimising water conservation annually at the Mpatamanga scheme, considering potential climate change scenarios and the latest understanding of extreme events in the area.
Inflow reduction due to increased temperature and potential precipitation reduction due to climate change	Research on Lake Malawi water balance	[GC 16] Initiate an international research program focusing on Lake Malawi water balance, lake level evolution and Shire River flow.



Targeted Risk	Topic	Recommended Measure
Inflow reduction due to increased temperature and potential precipitation reduction due to climate change	Combined hydropower model	[GC 17] Prior to the commissioning, a study will be conducted to create a model encompassing all existing and planned hydropower schemes on the Shire River, including Nkula, Tedzani, Mpatamanga, and Kapichira. Including energy production simulation considering each power plant specificities, demand patterns and external factors (i.e. agriculture needs)



6.10 Watershed, Transboundary and Other Projects Coordination

The 2024 Cumulative Impact Assessment (CIA) undertaken as part of the 2024 ESIA (see Chapter 11 of the ESIA) made several recommendations aiming at better coordinating the activities undertaken in the Shire River watershed, including hydropower. They are listed in Table 6-9 below.



Table 6-9 Resulting from the 2024 Cumulative Impact Assessment

Targeted Risk	Topic	Recommended Measure	Responsible Entity
Shire River Watershed level			
Reduction of downstream river flow during reservoir filling	Environmental Flow	Any potential impacts due to reservoir filling will be minimised through Shire River flow management operations. That is: i) if in 'dry conditions' request an additional release from Kamuzu Barrage; and ii) if in 'wet conditions', advise downstream users of reduced downstream flow	NWRA, EGENCO, MHPL.
Flood, drought and generation outputs	Joint dam operation	[GO 4] Create a joint dam operation for the dams along the Shire River (Liwonde, Nkula, Mpatamanga and Kapichira).	NWRA, EGENCO, MHPL.
Downstream erosion	Community Safety	[GO 5] Based on updated predictions for lateral erosion (extent and temporality), the provisions of the legal framework about the status of riparian land, decide if/when an expropriation process must be initiated for areas already exposed to erosion downstream of the Kapichira Dam, along the Chikwawa cliff, on the right bank, immediately upstream of the Chikwawa bridge, where people are currently residing, or where land development needs to be frozen to avoid future involuntary resettlement. [GO 6] Execute the selected measures.	Physical Planning Department of District Council Chikwawa
Charcoal extraction and agricultural encroachment	Catchment rehabilitation	[GO 7] Catchment rehabilitation, including rehabilitation/reforestation of targeted erosion hot-spot areas in tributaries with the highest sediment yield to the Shire.	Department of Forestry, Ministry of Water and Sanitation, Department of Environmental Affairs.
Increase poaching, encroachment, and charcoal extraction.	Tourism and protected areas enhancement	[GO 8] Enhancing tourism and protection management of protected areas in the basin. The CIA suggests complete restoration of New Lengwe or at least major parts of it. Tourism development should go hand in hand with strengthening protected areas management.	Department of Tourism, Department of National Parks and Wildlife, African Parks, Robin Pope.
Charcoal extraction, degradation of habitats	Sustainable land use and energy transition	[GO 9] Sustainable land use enhancement and energy source transition that follows the goals and targets in the Renewable Energy Strategy (2017), National Charcoal Strategy (2017) and National Forest Landscape Restoration Strategy (2017) implemented for the Shire Basin, e.g. transition from biomass (woodfuel/charcoal) to more renewable (or sustainable sources) as the energy source.	Department of Environmental Affairs, Ministry of Energy, MERA, Department of Forestry.
Reduction in soil productivity, extreme events and pollutants runoff.	Sustainable agriculture transition	[GO 10] Conservation agriculture, farmer-managed natural regeneration and agroforestry: (i) Increase tree cover on degraded low-yielding cropland and pastures in agricultural landscapes through farmer-managed and assisted natural regeneration, direct seeding, and planting of agroforestry trees and shrubs. (ii) Implement climate-smart agricultural techniques (including FMNR), continuous cover crops, crop rotation etc.	Department of Agricultural Extension Services, Department of Agricultural Research Services.
Sub-optimal water management	Institutional strengthening of NWRA	[GO 11] Institutional Strengthening of NWRA, including a Stakeholder Co-Management Platform for the Shire River basin: MHPL should participate in such a Platform together with EGENCO, NWRA, and other major water users such as SVTP, Agricane, Illovo, etc.	NWRA, EGENCO, MHPL, SVTP,



Targeted Risk	Topic	Recommended Measure	Responsible Entity
			Etc.
Sedimentation in reservoirs, erosion	Payment for Ecosystem Services	[GO 12] Payment for Ecosystem Services (PES) Lisungwe Catchment: Reforestation of erosion hotspots in Upper Lisungwe catchment to reduce erosion and subsequent sediment transport into the Mpatamanga reservoir	Department of Forestry, NWRA, MHPL.
Overfishing	Sustainable fisheries	[GO 13] Implementing sustainable fisheries management plans from Chikwawa to Chiromo, i.e., the extent of the Elephant Marsh modelled in the CIA. Developing and implementing a fisheries management plan is considered imperative for the health of the river and the local communities.	Department of Fisheries.
Proliferation of hyacinth and mimosa in Elephant Marsh	Hyacinth and Mimosa management plan	[GO 14] Control of hyacinth and mimosa in the Elephant Marsh. Mimosa. Physical removal and soil treatment followed by revegetation with Indigenous seed mixes.	SVTP
Ecosystem degradation	Implementation of community conservation areas	[GO 15] Implementing Community Conservation Areas (CCAs) in the Elephant Marsh with a target of 50%.	SVTP
Transboundary level			
Environmental degradation, persistent poverty	ZAMCOM harmonisation	[GO 16] Harmonisation of basin/catchment management measures towards ZAMCOM (including dams' operation)	NWRA ZAMCOM
Ecosystem degradation	Eflow monitoring	[GO 17] Transboundary monitoring of Eflow releases	NWRA ZAMCOM
Other Dam/HPP projects			
Flood, drought and generation outputs	Joint dam operation	See [GO-6]	Liwonde Barrage (NWRA)
Flood, drought and generation outputs	Coordinated operation	[GO 18] Coordinated operation with other dams for power optimisation and flood releases	Nkula & Tedzani HPP (EGENCO)
Ecosystem degradation	Coordinated Eflows	[GO 19] Coordinated EFlows releases with other dams	Nkula & Tedzani HPP (EGENCO)
Flood, drought and generation outputs	Coordinated Eflows	[GO 20] Coordinated operation with other dams for power optimisation and flood releases	Kapichira HPP (EGENCO)
Ecosystem degradation	Coordinated Eflows	[GO 21] Coordinated EFlows releases with other dams	Kapichira HPP (EGENCO)
Ecosystem degradation	Wildlife disturbance mitigation	[GO 22] General disturbance to wildlife mitigation: (i) Prohibit establishment of workers' camps within Majete Wildlife Reserve (parts already taken and fenced for the Kapichira Rehabilitation) (ii) Prohibit contractors and workers so as not to hunt, kill, capture or trap any wildlife or bird at the project sites and vicinity; (iii) Ensure regular and proper servicing of machinery and vehicles to reduce the impact of noise; (iv) Ensure that no construction takes place at night in the protected areas; and (v) Ensure that blasting does not take place outside the times agreed with African Parks.	Kapichira HPP (EGENCO) African Parks



Targeted Risk	Topic	Recommended Measure	Responsible Entity
Migration influx	Social cohesion mitigation	[GO 23] Social cohesion mitigation: (i) Workers education programs and code of conduct; Collaboration with district and local health offices; (iii) Sensitive communities (including those from opportunistic influx); (iv) Labor influx and management procedures will need to be put in place	Kapichira HPP (EGENCO)
Shire Valley Transition Program level			
Park conservation & tourism	Improved infrastructure at Lengwe National Park	[GO 24] Improved attraction infrastructure to Lengwe National Park (LNP): (i) Establish eco-bridges that will be an additional attractive feature to the park for education and tourism and (ii) Establish a resource centre important for tourism and education	SVTP DNPW
Park conservation & tourism	Water access at Lengwe National Park	[GO 25] Enhanced access to water by wildlife in New Lengwe: (i) Provide water holes in the western side of the park; (ii) Provide water troughs fed by water from the canal and driven by gravity in the eastern side of the park and (iii) Provide enough security for water holes	SVTP DNPW
Park conservation & tourism	Improved facilities at Lengwe National Park	[GO 26] Improved facilities such as rangers' houses, camp sites and roads in LNP.	SVTP DNPW
Park conservation & tourism	Improved fauna corridor at Lengwe National Park	[GO 27] Construct eco-bridges to enable game movement between the Old and New Lengwe and provide for underpasses (see also 15).	SVTP DNPW
Park conservation	Park protection	[GO 28] Enhance enforcement capacity of park authority, provide additional logistic/physical support measures	SVTP DNPW
Park conservation & tourism	Improved infrastructure at Majete	[GO 29] Include loss of revenue in compensation for Majete; Construct alternate access routes for tourists coming to Majete; and (iii) Support improvements and construction of new tourism facilities in Majete and (iv) Develop a bridge to provide access to Kapichira Falls	SVTP African Parks
Park conservation & tourism	Biodiversity management plan at Majete	[GO 30] Support African Parks Majete in developing and implementing the Biodiversity Management Plan; Develop and implement a restoration plan covering the Intake and the First 6 km, including the borrow pit.	SVTP
Park conservation & tourism	Wildlife disturbance mitigation	[GO 31] General disturbance to wildlife mitigation: (i) Prohibit establishment of workers' camps within the wildlife reserve and National Park (ii) Prohibit contractor and workers so as not to hunt, kill, capture or trap any wildlife or bird at the project sites and vicinity; (iii) Ensure regular and proper servicing of machinery and vehicles to reduce the impact of noise; (iv) Ensure that no construction takes place at night in the protected areas; and (v) Ensure that blasting does not take place outside the times agreed with DNPW or APM.	SVTP, DNPW African Parks
Migration influx	Social cohesion mitigation	[GO 32] Social cohesion mitigation: (i) Workers education programs and code of conduct; Collaborate with district and local health offices; (ii) Sensitive communities (including those from opportunistic influx); (iv) Labor influx and management procedures will need to be put in place.	SVT
MOMA level			
Biodiversity degradation	Sensitive vegetation conservation	[GO 33] Undertake ROW vegetation cutting with the supervision of a botanist to identify and relocate, if possible, species of conservation concern, as well as protect vegetation that does not represent a risk for the powerline. Any species of conservation concern that needs to be cut will be located, and its habitat will be fully described. This information will be integrated in the planning of a reforestation program. If possible, collect seeds from species of conservation concern for propagation.	ESCOM



Targeted Risk	Topic	Recommended Measure	Responsible Entity
Biodiversity degradation	Poaching mitigation	[GO 34] Includes (i) Promote the selection of areas with less of a need for tree cutting for construction of temporary worker's campsites and storage facilities and (ii) Implement a biodiversity protection awareness program with workers. Prohibit workers from owning firearms and other hunting gear and raise awareness about the prohibition of engaging in any poaching.	ESCOM DNPW
Migration influx	Social cohesion mitigation	[GO 35] Social cohesion mitigation: (i) Workers education programs and code of conduct; Collaborate with district and local health offices; (ii) Sensitive communities (including those from opportunistic influx); (iv) Labor influx and management procedures will need to be put in place.	ESCOM



7 Budget and Workplan

7.1 Budget

The estimated cost of the ESMMP measures under the responsibility of MHPL is provided in Table 7-1 and detailed in Table 7-2. **It is a preliminary budget** that would need to be updated as long as the Project's activities progress and that the need for mitigation materializes. It is made of:

- Budget during the construction period (54 months): USD 62,628,174
- Annual budget for the operation phase, during the first three years: USD 8,120,382
- Annual budget for the operation phase, after the first three years: USD 2,368,867

The budget required for the implementation of the measures under the responsibility of the EPC Contractor is included in the EPC Contracts. Therefore, these costs are not included in Table 7-1.

Table 7-1: Summary Preliminary Budget for the ESMMP Measures under the Responsibility of MHPL

Sub-Plan	Construction (54 months)	Operation, per year	
		First 3 years	4-10 years
Environmental & Social Management System	\$1,370,000	\$25,000	\$-
Management of Change Procedure ^[a]	\$-	\$-	\$-
Environmental Surveillance of Construction works ^[a]	\$-	\$-	\$-
Resettlement ^[b]	\$40,878,194	\$2,854,188	\$-
Environmental Flow Management ^[c]	\$-	\$-	\$-
Influx	\$2,700,000	\$1,100,000	\$125,000
Downstream Floodplain Erosion & Groundwater	\$2,175,000	\$425,000	\$425,000
Community Health	\$3,397,000	\$635,000	\$331,450
Community Safety & Security	\$1,400,000	\$210,000	\$60,000
Gender Action Plan	\$1,000,000	\$90,000	\$20,000
Habitat and Biodiversity	\$ 4,507,980	\$ 691,193	\$ 617,417
Local Area Development (Community Investment)	\$1,950,000	\$850,000	\$200,000
Reservoir Management	\$1,450,000	\$250,000	\$150,000
Stakeholder Engagement	\$500,000	\$200,000	\$25,000
E&S Monitoring	\$1,200,000	\$725,000	\$350,000
Cumulative Impacts	\$100,000	\$65,000	\$65,000
TOTAL	\$62,628,174	\$8,120,382	\$2,368,867

[a] Included in construction costs

[b] Responsibilities and funding for the preparation and implementation of the Resettlement Action Plans are distributed between the Government of Malawi (66% - Compensations and Resettlement assistance) and MHPL (33% - Livelihood restoration and monitoring).

[c] Included in construction and operation costs



Table 7-2: Preliminary Budget for the ESMMP Measures under the Responsibility of MHPL

Sub-Plan	Component	Construction [54 months]	Operation per year	
			First 3 years	Year 4 to 10
Environmental & Social Management System	ESMS 1 - System Development	\$ 50,000	\$ 25,000	\$ -
	ESMS 2 - System Implementation	\$ -	\$ -	\$ -
	ESMS 3 - E&S Technical Assistance	\$ 1,320,000	\$ -	\$ -
Management of Change Procedure ^[a]	MCP	\$ -	\$ -	\$ -
Environmental Surveillance of Construction works ^[a]	SURV 1 - Integration of alternative design into final design	\$ -	\$ -	\$ -
	SURV 2 - Environmental supervision of construction methods	\$ -	\$ -	\$ -
Resettlement ^[b]	RAP1 - Compensations	\$21,651,179		\$ -
	RAP2 - Resettlement Assistance	\$ 9,304,450		\$ -
	RAP3 - Livelihood Restoration	\$6,587,565	\$2,195,855	\$ -
	RAP4 - Grievance Management	\$ 1,360,000		\$ -
	RAP5 - Implementing Costs	\$1,625,000	\$ 541,667	\$ -
	RAP6 - Monitoring and evaluation	\$ 350,000	\$ 116,667	\$ -
Environmental Flow Management ^[c]		\$ -	\$ -	\$ -
Influx	INF 1 - Planning & Monitoring	\$ 100,000	\$ 25,000	
	INF 2 - Minimizing Opportunistic In-Migration	\$ 600,000	\$ 75,000	\$ 25,000
	INF 3 - Community Resilience Strengthening	\$ 2,000,000	\$ 1,000,000	\$ 100,000
Downstream Floodplain Erosion & Groundwater	DOWN 1 - Floodplain Investigations	\$ 2,000,000	\$ -	\$ -
	DOWN 2 - Monitoring and Independent Review Panel	\$ 175,000	\$ 175,000	\$ 175,000
	DOWN 3 - Management and Response Planning		\$ 250,000	\$ 250,000
Community Health	HEA 1 - Planning and governance	\$ 1,670,000	\$ 363,000	\$ 198,000
	HEA 2 - Health System Strengthening	\$ 1,175,000	179,400	\$ 94,450
	HEA 3 - Health Support Initiatives in Local Area Development Plan	\$ 282,000	\$ 52,600	\$ 14,000
	HEA 4 - Resettlement Planning & Management	\$ 70,000	\$ 4,000	\$ 2,000
	HEA 5 - Baseline Health Surveys & Monitoring	\$ 200,000	\$ 36,000	\$ 23,000
Community Safety & Security	CSS1 - Engagement of communities on safety and security	\$ -	\$ -	\$ -
	CSS2 - Public safety and security at Project's sites	\$ 500,000	\$ 40,000	\$ 10,000
	CSS3 - Traffic Management and Road Safety	\$ 100,000	\$ -	\$ -
	CSS4 - Public safety around reservoirs	\$ 500,000	\$ 120,000	\$ -
	CSS5 - Emergency preparedness plan	\$ 300,000	\$ 50,000	\$ 50,000
Gender Action Plan	GAP 1 - Gender Mainstreaming in other Sub-plans	\$ -	\$ -	\$ -
	GAP 2 - GBVH Prevention and Management Systems Preparation	\$ 200,000	\$ 50,000	\$ -
	GAP 3 - GBVH Prevention and Management Systems Implementation	\$ 800,000	\$ 40,000	\$ 20,000
Habitat and Biodiversity	BAP1 -Aquatic habitat offset (Elephant Marsh)	\$ 658,900	\$ 149,370	\$ 150,000
	BAP2 -Terrestrial habitat offset (Neno Conservancy)	\$ 1,209,680	\$ 222,020	\$ 230,000
	BAP 3 -Vultures, Rhino, Pangolin, SCAs, Planning and M&E	\$ 563,400	\$ 27,387	\$ 30,000
	BAP 4 - Majete influx mitigation	\$ 1,291,000	\$ 142,417	\$ 142,417
	BMP - Measures not included in the BAP Budget	\$ 785,000	\$ 150,000	\$ 6 5,000
Local Area Development (Community Investment)	LADP 1 - Local Area Development Assessment	\$ 250,000	\$ -	\$ -
	LADP 2 - Governance and Planning	\$ 200,000	\$ -	\$ -
	LADP 3 -Delivering community investment	\$ 1,500,000	\$ 850,000	\$ 200,000
Reservoir Zoning, Fisheries and Alien Invasive Species Management	RES 1: Reservoir Zoning	\$ 200,000		
	RES 2: Community and Livestock Access to Reservoir Water	\$ 750,000	\$ -	\$ -
	RES 3: Reservoir Fisheries	\$200,000	\$ 100,000	\$ 100,000
	RES 4: Alien Invasive Fish and Aquatic Weed Management	\$ 300,000	\$ 150,000	\$ 50,000
SEP	Stakeholder Engagement & Public Information Centers	\$ 400,000	\$ 100,000	\$ 25,000
	Grievance Management	\$ 100,000	\$ 100,000	\$ -
E&S Monitoring	MON. 1 Air quality	\$ 50,000		
	MON. 2 Noise levels	\$ 50,000		
	MON. 3 River water quality	\$ 200,000	\$ 50,000	\$ 25,000
	MON. 4 Reservoir water quality	\$25,000	\$ 25,000	\$ 25,000
	MON. 5 Ground water quality	\$ 100,000	\$ 50,000	\$ 25,000
	MON. 6 River geomorphology	\$ 50,000	\$ 100,000	\$ 100,000
	MON. 7 Fauna	\$ -	\$ -	\$ -
	MON. 8 Birds	\$ -	\$ -	\$ -
	MON. 9 Aquatic Biomonitoring	\$ -	\$ -	\$ -
	MON. 10 Waterborne disease vectors	\$ -	\$ -	\$ -
	MON. 11 Fish	\$ -	\$ -	\$ -
	MON. 12 Alien invasive plants	\$ -	\$ -	\$ -
	MON. 13 Waterborne Disease Host	\$ -	\$ -	\$ -
	MON. 14 Rehabilitation success	\$ -	\$ -	\$ -
	MON. 15 Reservoir Shore erosion	\$ -	\$ 50,000	\$ 25,000
	MON. 16 Flow variations	\$ 100,000	\$ 50,000	\$ 50,000
	MON. 17 Climate	\$25,000	\$ 25,000	\$ 25,000
	MON. 18 Groundwater yields and levels	\$ 50,000	\$ 25,000	\$ 25,000
	MON. 19 Land use	\$ 100,000	\$ 50,000	\$ 50,000
	MON. 20 Local price inflation	\$ 100,000	\$ 50,000	\$ -
	MON. 21 Fisheries	\$ 100,000	\$ 100,000	\$ -
	MON. 22 Community health	\$ -	\$ -	\$ -



Sub-Plan	Component	Construction [54 months]	Operation per year	
			First 3 years	Year 4 to 10
	MON. 23 Fence breach	\$ -	\$ -	\$ -
	MON. 24 Employment	\$ -	\$ -	\$ -
	MON. 25 RAP progress	\$ -	\$ -	\$ -
	MON. 26 LRP progress	\$ -	\$ -	\$ -
	MON. 27 Influx	\$ 100,000	\$ 100,000	\$ -
	MON. 28 Light pollution	\$ 100,000	\$ 25,000	
	MON. 29 Reservoir triggered seismicity	\$ 50,000	\$ 25,000	
	MON. 30 Future flooding events	\$ -	\$ -	\$ -
Cumulative Impacts		\$ 100,000	\$ 65,000	\$ 65,000
Total		\$62,628,174	\$8,120,382	\$2,368,867

[a] Included in construction costs

[b] Responsibilities and funding for the preparation and implementation of the Resettlement Action Plans are distributed between the Government of Malawi (66% - Compensations and Resettlement assistance) and MHPL (33% - Livelihood restoration and monitoring).

[c] Included in construction and operation costs

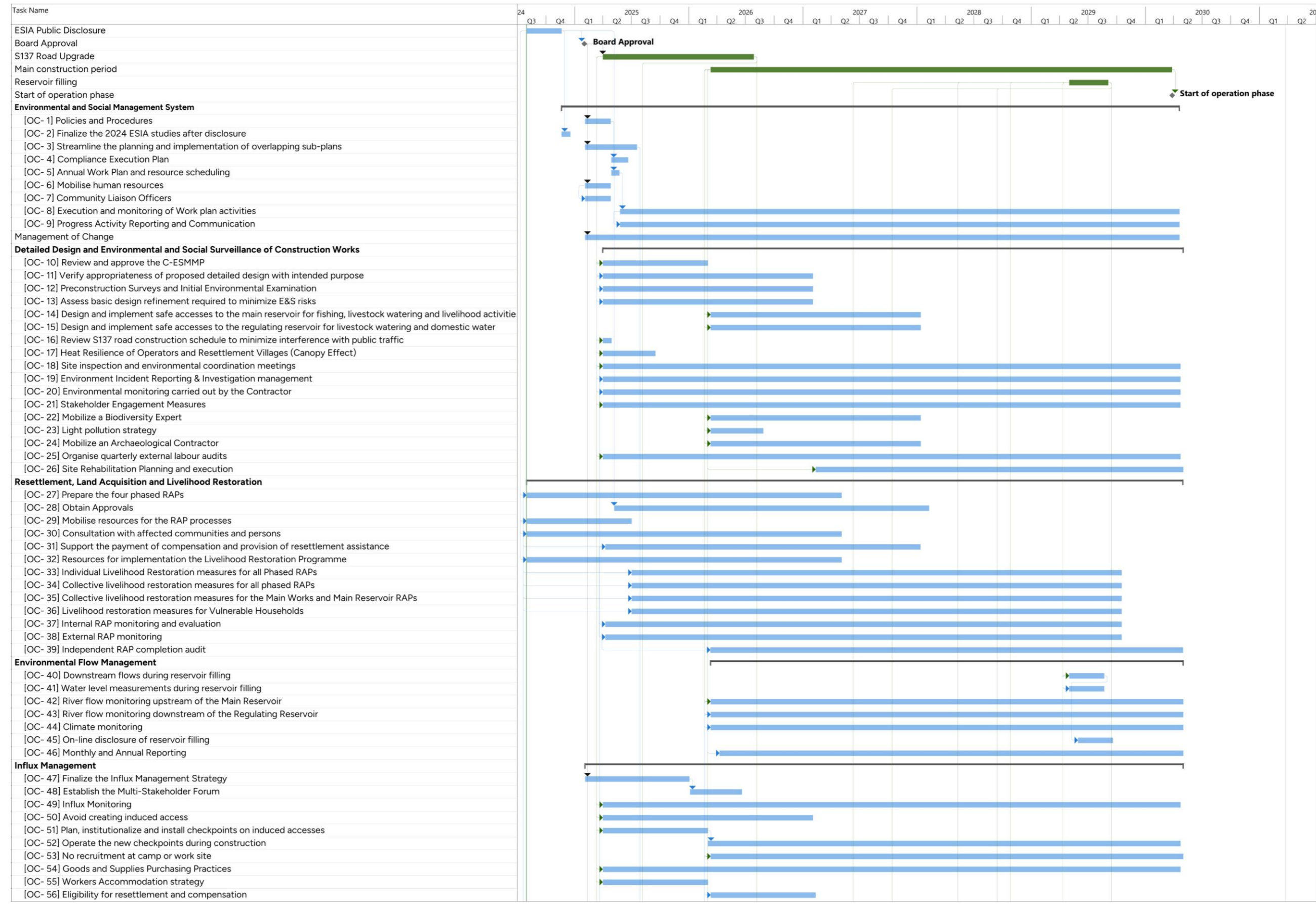


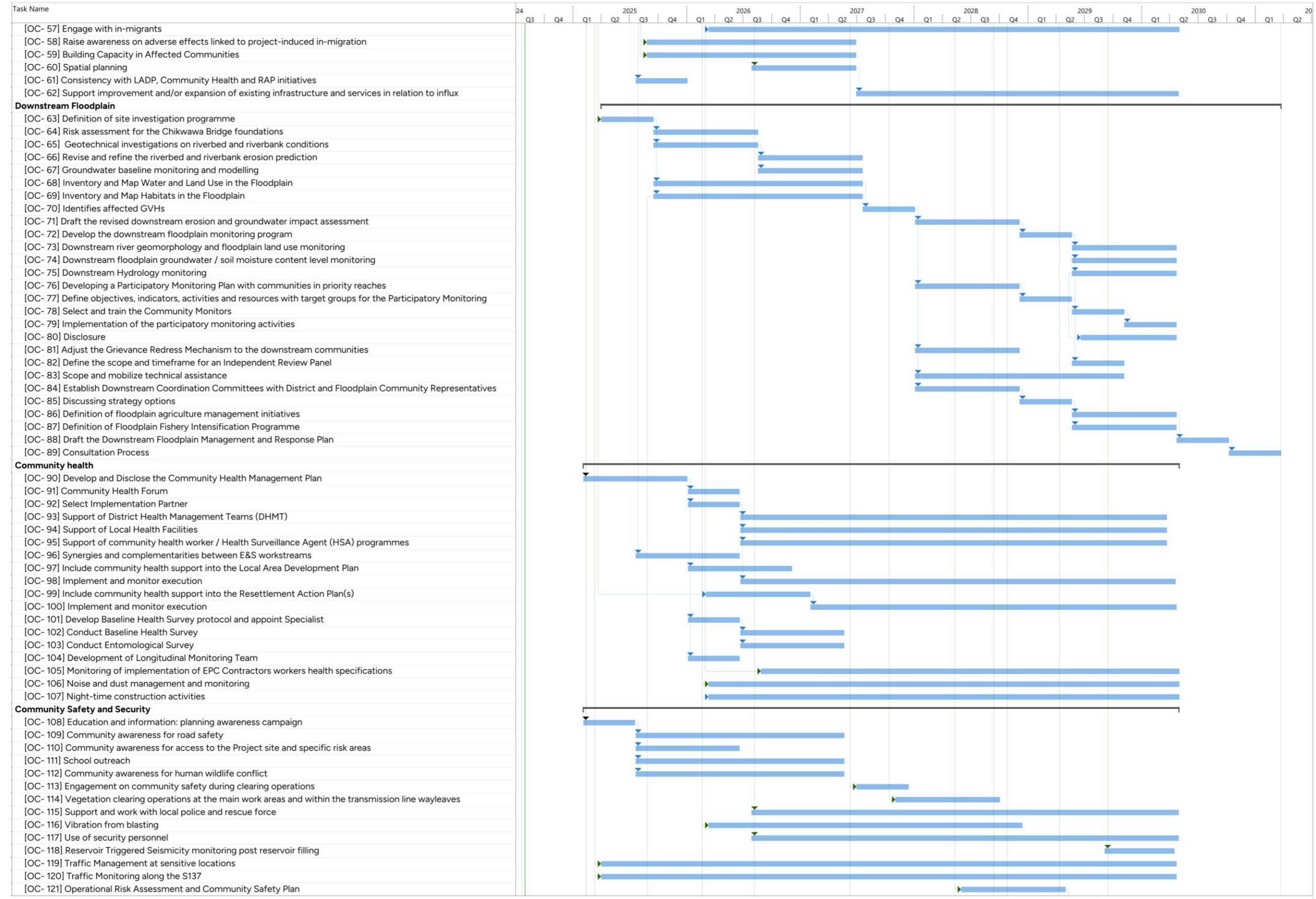
7.2 Work Plan

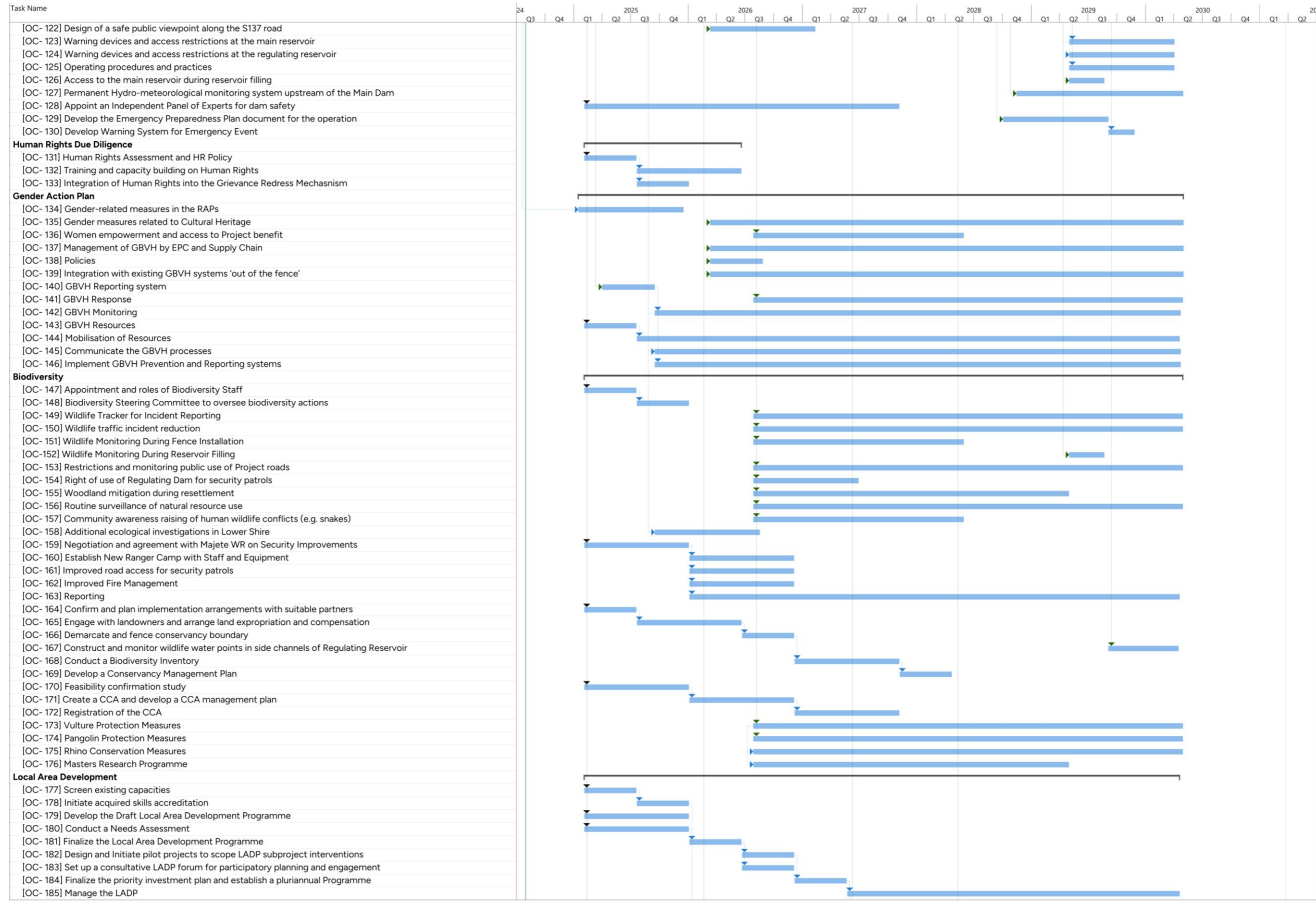
The Gantt chart in Figure 7-1 overleaf shows the implementation schedule of the management actions under the responsibilities of MHPL for the construction period. The activity schedule for the operation period will be prepared and implemented as part of the ESMS implementation one year prior to the powerhouses' commissioning.

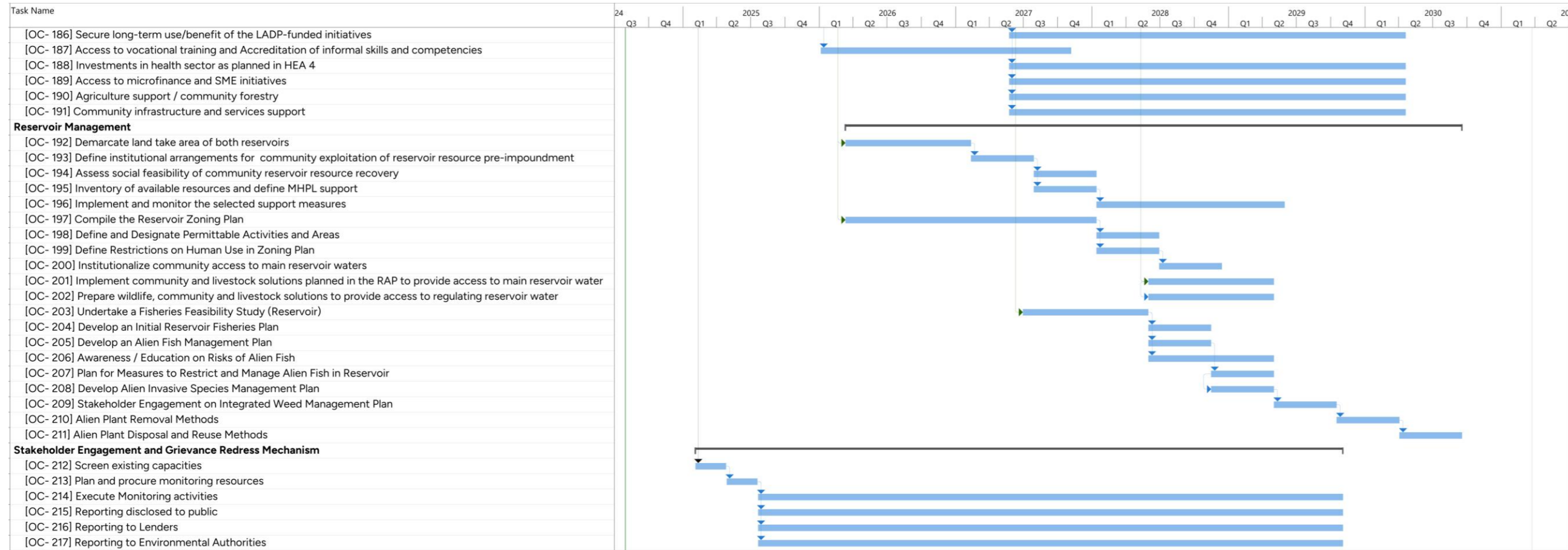


Figure 7-1: ESMMP Workplan for the Construction Period

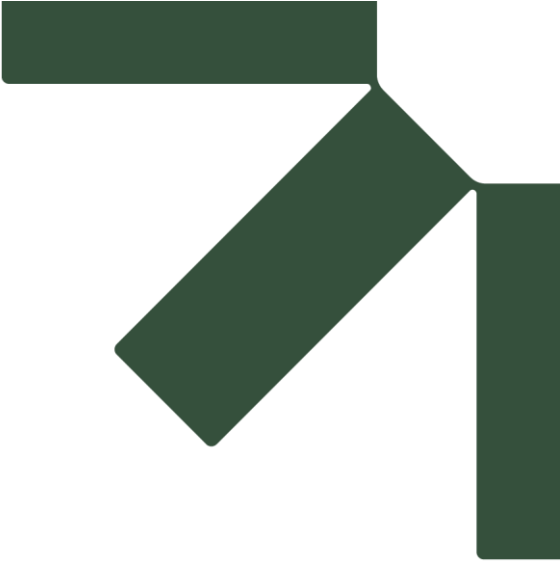








Annexes



Annex 1: Reference



- Department of Fisheries. (2023, June). National Plan of Action for Implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (NPOA-SSF Guidelines) in Malawi—2023-2030.
- IFC. (2007). Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets.
- ILO. (2019, June 21). CONVENTION 190 CONCERNING THE ELIMINATION OF VIOLENCE AND HARASSMENT IN THE WORLD OF WORK.
https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_711570.pdf
- MHPL. (2023). Draft Stakeholder Engagement Plan (MHPP001-MP-SEP-001).
- MHPL. (2024, February). Mpatamanga Project Brochure. GRM brochure No.1.
- TBC. (2024b). Residual Impact Assessment. Mpatamanga Hydropower Project, Malawi. The Biodiversity Consultancy Ltd, Cambridge, UK.
- Total E&P. (2020, February 17). Mozambique LNG - Project-Induced In-migration Management Plan— Document No. MZ-000-AM1-SP-PLN-00001. Rev 2.
- UNDP. (2021, August). Guidance for Participatory Monitoring, Evaluation and Learning System.
https://www.undp.org/sites/g/files/zskgke326/files/2024-05/annex_vi_participatory_monitoring_system.pdf
- UNDP. (2022). Malawi National Human Development Report 2021.
- World Bank. (2016). Managing the risks of adverse impacts on communities from temporary project induced labor influx. Operations Policy and Country Services (OPCS). Environmental and Social Safeguards Advisory Team (ESSAT).
- World Bank. (2018). Addressing Gender Based Violence in Investment Project Financing involving Major Civil Works.

