

Mpatamanga Hydro Power Project (MHPP)

Terms of Reference (ToR) for Biodiversity Action Plan (BAP) Development

Draft Summary Version for Consultation prepared: 24th October 2022
(Current Final Draft Version aligns with ToR tendered 14th November 2022)

CONTENTS

1. PRESENTATION OF THE PROJECT.....	3
1.1 GENERAL CONTEXT: MPATAMANGA HPP PROJECT	3
1.2 PROJECT LOCATION	4
1.3 TRANSMISSION LINES	6
2. ENVIRONMENTAL CATEGORIZATION	6
3. APPLICABLE E&S STANDARDS AND GUIDELINES.....	6
4. TERMS OF REFERENCE (TOR) FOR BAP (SOW)	7
4.1 INTRODUCTION	7
4.2 BIODIVERSITY CONTEXT OF THE MPATAMANGA PROJECT	7
4.3 BAP DELIVERABLES SCOPE	8
4.4 KEY DELIVERABLES.....	16
4.5 TEAM PROFILE	16

1. PRESENTATION OF THE PROJECT

1.1 GENERAL CONTEXT: MPATAMANGA HPP PROJECT

The **Mpatamanga hydropower project (350 MW)** is planned to be built in the Shire River in southern Malawi. The Mpatamanga project will harness the river flow coming from Lake Malawi, which is regulated by the Kamuzu Barrage, and the significant head created by a first dam and the by-pass of a steeply sloped river stretch in the Middle Shire river catchment.

The Project as per the Baseline layout consists of two cascading Hydropower plants;

1. A power station at the main dam will have an installed capacity of 309 MW and will operate as a peaking plant to meet peak demand. The plant will be equipped with six vertical Francis turbine units of 52.5 MW capacity each. The rated discharge of each turbine will be 91.7 m³/s, for a **total rated discharge of 550 m³/s**. The **normal water level at the intake will be at EL 276 m**, the tailwater level at the power plant nominal discharge will be at EL 210.2 m: the rated gross head will be 66 m.
2. A Regulating Dam power station will have an installed capacity of 41 MW or 50MW to bring the flow of the river to its natural state to preserve the Majete reserve located downstream. The plant will be equipped with two bulb turbines of 20.5 MW capacity each. The rated discharge of each turbine will be 136 m³/s, for a total rated **discharge of 272 m³/s**.

The project will create two reservoirs, a large reservoir at the main dam and a smaller reservoir at the regulating dam. The main reservoir will be 22 km in length and will flood an area of 19 km² with a full supply level of EL 276 m. The regulating reservoir will be 6.6 km in length and will flood an area of 1.1 km² with a full supply level of EL 213 m and minimum operating level EL 206.5 m. The reservoir will have an active Volume of 6.9 hm³ (6.9 million m³). The reservoir level will fluctuate by 6.5 m most days.

The following table summarizes the main characteristics of the project as defined at this stage.

Item / Structure	Single Tunnel Alternative	Comment
General information		
Power stations (PS)	Main PS and RD PS	
Installed capacity	309 MW and 41 MW	
River	Shire River	
Position of the Main Power Station	15°43'21"S; 34°43'40"E	
Position of the RD Power Station	15°46'47"S; 34°44'19"E	
Main Reservoir		
Full Supply Level (FSL)	EL 276.0 m	
Minimum Operating Level (MOL)	EL 273.0 m	May be lowered by -1m to mitigate the impact of sedimentation in the upstream part of the reservoir
Design Flood Level	EL 276.5 m	Q 10 000 flood with N-1 gates open
Design Flood discharge	3 710 m ³ /s	Q 10 000
Total reservoir volume	261 Mm ³	
Active reservoir volume	58 Mm ³	
Main Dam		
Dam Crest level	EL 278.5 m	
Spillway Gated weir		
Number of gates	4	13 m H x 13 m W
Weir sill elevation	EL 263.0 ml	
Bottom Outlet		
Gate Size	6 m x 6 m	

Sill elevation	EL 235.0 m	
Water intake		
Water intake height	34 m	
Water intake invert elevation	EL 248.70 m	
Main Powerhouse		
Total discharge	550 m ³ /s	
Turbine axis elevation	EL 203.40 m	
Regulating Dam Reservoir		
Us Full Supply Level (FSL)	EL 213.0 m	
Us Minimum Operating Level (MOL)	EL 206.5 m	
Ds Full Supply Level (FSL)	EL 192.0 m	
Ds Minimum Operating Level (MOL)	EL 191.38 m	
Downstream Design Flood Level	EL 199.0 m	
Active reservoir volume	6.95 hm ³	
Design Flood	3 710 m ³ /s	= Q10 000
Regulating Dam - Gravity blocks		
Dam Crest level	EL 215.50 m	
Regulating Dam Spillway		
Number of gates	4	13 m H x 13 m W
Spillway Weir sill elevation	EL 200.00 m	
Regulating Dam Powerhouse		
Total discharge	272 m ³ /s	
Turbine axis elevation	EL 184.50 m	

Table 1. Mpatamanga HPP Project characteristics (before the ongoing revision)

1.2 PROJECT LOCATION

The Project will be located on the Shire River between the existing Tedzani and Kapichira hydropower plants. It is positioned about 35km west of Blantyre in the south of Malawi at the intersecting boundary of two districts: Blantyre to the East and Neno to the West. The Shire River is the largest river in Malawi and is the only outlet of Lake Malawi.

The site of the main dam is about one and a half hours by car from the city of Blantyre, on an existing dirt road (S137) that leads from Chileka Airport to the location of the old Shire Bridge (now washed away) immediately above the proposed site for the main dam at Mpatamanga Gorge. The Mpatamanga Gorge and ridge are distinctive in the landscape, with altitudes between 450-500m that frame the project area. The regulating dam is located around 6km south of the main dam location, just north of the Majete Wildlife Reserve. Heading south from the main dam towards the regulating dam location the area is of lower topography and more undulating hills.

Settlements are dispersed around the main dam and reservoir location, with the area around the regulating dam far more sparsely populated.

The Project site is located upstream from sensitive sites for biodiversity; namely the Majete Wildlife Reserve (MWR) and the Elephant Marsh Ramsar Site.

The location in the national context is shown in Figure 1 below.



Figure 1 – Project Location in the national context

More specifically, the Project (including the Transmission power lines) will be located in the Neno, Blantyre and Balaka districts, and in the Kunthembwe, Mlauli, Symon and Nsamala Traditional Authorities (TAs). The various village head groupings (GVHs) and villages near the Project area are listed in the table below, along with the project infrastructure in close proximity to these villages.

District	Traditional Authorities	Project component	Village
Blantyre	Kunthembwe	Main dam and water reservoir Regulating dam and water storage Regulating dam transmission line S137 access road	Affects GVH Kaliati and GVH Namputu Villages or households from these villages in main dam inundation area: Chaswanthaka, Chikila, Lisangwi Neighboring villages outside the inundation area or along the S137 road: Enosi, Liyedna, Nkoka, Felemu, Chisoni, Ndiranda, Chaswanthaka, Fose No villages are near the RD
Neno	Mlauli	Main dam and water reservoir Regulating dam and water storage Main dam transmission line S137 access road	Affects Felemu GVH Villages in the inundation area: Kambalame Villages along the S137 road: Felemu Villages close to the TL route: Julaya (Julayi/July), Jonathan
	Symon	Main dam and water reservoir Main dam transmission line	No villages in Symon in the inundation area Nearby villages outside the inundation area – Liyedna and Nkoka Villages close to the TL route: Liyenda (Lienda), Joseph, Mkoka, Mbemba, Tedzani, Kandoje, Ngewnyama, Matope
Balaka	Msamala	Main dam transmission line	Villages close to the TL route: Chikapa, Laja,

Source: Mott MacDonald, Mpatamanga Project Draft Environmental and Social Impact Assessment (ESIA) (February 2021).

1.3 TRANSMISSION LINES

The transmission lines included in the Project are:

- A 400 kV double circuit transmission line, 64 km long, connecting the substation at the Main Dam to the Phombeya Substation, and;
- A 132kV transmission line for the interconnection scheme for the regulating dam, with two options:
 - 132kV double-circuit 7.3 to 11.4km in loop-in / loop-out between Kapichira and Tedzani regulating dams; or a
 - 132kV single-circuit 6.6 km to the main plant switchyard.

The transmission line routing for the 400 kV line has already undergone optimization (Multiconsult study). It runs parallel to the transmission line for the Mozambique-Malawi Interconnector. The target date for completion of the new Mozambique-Malawi Interconnector power line is around October 2023¹.

The routing for the 132kV transmission line is currently being studied and the preferred option will be defined as part of the design freeze process.

2. ENVIRONMENTAL CATEGORIZATION

This project has been categorized by the World Bank as a Category A/High Risk Project² because it involves:

- (i) the physical resettlement of at least 185 households and economic displacement of at least 385 households, a school with 500+ students and an estimated 43-50 households along the T-line and access road,
- (ii) negative impacts on livelihoods and increased social risks related to construction-induced immigration,
- (iii) impact on critical habitat triggers (several fish species in particular) and
- (iv) contribution to cumulative impacts and risks from existing and planned HPPs on the Shire river, in addition to other activities in the catchment, and climate-related vulnerabilities.

3. APPLICABLE E&S STANDARDS AND GUIDELINES

E&S deliverables must be developed to comply with all applicable regulatory and lender requirements.

The applicable regulatory requirements include, but are not limited to:

- Applicable social and environmental laws, regulations and policies of Malawi relating to concessions, land acquisition and resettlement, labor and working conditions, pollution prevention and control, public health and safety, biodiversity protection and conservation, ethnic groups/indigenous peoples and environmental protection, required to obtain an updated GoM-compliant ESIA/BAP/RAP/CIA for the Mpatamanga HPP;
- Relevant international treaties to which Malawi is a signatory, such as (but not limited to) the UN Declarations, International Labor Organization (ILO) Core Conventions and all other ILO Conventions ratified by Malawi. Special attention should be placed on ensuring compliance with any conventions or treaties to which Malawi is a signatory that are related, but not limited to, any international waterways including the Zambezi River such as the Ramsar Convention and Convention of Biological Diversity.
- International Financing Institution (IFI) standards including:
 - The IFC Performance Standards (2012);
 - World Bank Environmental and Social Framework (ESF) (2017);
 - Equator Principles 4 (EP4) (July 2020).

¹ <https://www.voanews.com/a/malawi-mozambique-launch-power-interconnector-project/6541176.html>, accessed 19 September 2022.

² Category A in accordance with the World Bank's (previous) Operational Policies and High Risk in accordance with the World Bank's Environmental and Social Framework (ESF) (2017).

- Relevant World Bank Group (WBG) Environmental, Safety, and Health (ESH) Guidelines
- The UN Guiding Principles on Business and Human Rights (UNGPs) (2011).
- Relevant EDF and SCATEC corporate requirements; for example the French Government's loi de vigilance (*Loi 2017-399 du 27 Mars 2017 relative au devoir de vigilance des sociétés mères et des entreprises donneuses d'ordre*).

4. TERMS OF REFERENCE (TOR) FOR BAP (SOW)

4.1 INTRODUCTION

This SoW relates to the appointment of a consultant (the "Consultant") to: i) finalize the Biodiversity Action Plan (BAP) for the Mpatamanga Project; and ii) prepare the associated plans required for the application of the WB ESS6 and IFC PS6 for modified, natural and critical habitats.

The service will start with an inception phase which will be crucial to inform the rest of the SoW.

MHPL and the GoM PIU will work closely with the Consultant to ensure that fieldwork can commence as early as possible in 2023 in order to undertake data collection taking into account the rainy season (the peak of the wet season being between December and March). To facilitate this, Consultants are requested to clearly outline the support they would need to in order to enable required fieldwork to commence.

Any other Consultant suggestions for how to ensure that appropriate data collection is able to commence as early as possible in 2023 should be included in the Consultant's proposal. Consultants are likely to be requested to participate in Client discussions with IFIs and also present their findings to potential IFIs. Sufficient time for this scope needs to be included in the Consultant's proposal.

4.2 BIODIVERSITY CONTEXT OF THE MPATAMANGA PROJECT

The Mpatamanga Project is within a landscape that supports a number of legally protected areas and internationally recognized areas. The Project site is located immediately upstream of two sensitive sites for biodiversity, namely **Majete Wildlife Reserve (MWR)** and **Elephant Marsh Ramsar Site**.

The Majete Wildlife Reserve, which is assigned IUCN Management Category IV (habitat/species management area), is located 100 m south of the RD and 6.5 km south of the main dam. The Reserve was established as a protected area in 1975 and is approximately 705 km² in size. African Parks has been managing the Reserve since 2003. Critically endangered black rhinoceros (*Diceros bicornis*) were reintroduced in 2003; endangered elephants in 2006; lions in 2012 and other large mammals including giraffe in 2018, and cheetah in 2019 (African Parks, 2020).

The Elephant Marsh is a Wetland of International Importance designated under the Ramsar convention and is one of four such internationally recognized areas within the Mpatamanga Project's terrestrial Area of Analysis (AoA). This site is located in the lower Shire valley, 28km south of the regulating dam (RD) and 26.3km south of the potential RD Transmission Line (TL) corridor. The Elephant Marsh lies on the floodplain of the lower Shire River between the districts of Chikwawa and Nsanje. The Marsh's hydro morphology is dependent on the hydrology of the upstream Shire River Basin and other upstream tributaries including: its source, Lake Malawi; adjacent sub-catchments; and the Ruo River.

The Ruo River, which is one of the largest tributaries of the Shire River, and which forms the southeast boundary with Mozambique, joins the Shire River near Chiromo. In the north-west, the Marsh is typically a seasonal wetland; centrally, it is semi-permanent marshland, and in the south, it is characterized by semi-permanent marsh and shallow lakes. The vegetation of the Marsh is comprised of 615 km² of a mosaic of rooted swamp vegetation floating mats (sudd); palm (Aceraceae) and fever trees (*Vachellia xanthophloea*) are found on the margins. There are also invasive plant species that, with the reduced flow due to the

Kapichira HPP, have advanced along the exposed shorelines.

The site supports large populations of birds (over 20 000), some of which may trigger IFC PS 6 criterion 3, as well as other species of conservation concern (e.g. *Colotis amata*, *Salvadora persica*). Besides bird life, the marsh has many fish species; some of which are endemic to the wetland only in Malawi, such as Makakana. In addition to biodiversity, the Elephant Marsh provides ecosystem services and supports livelihoods in farming, livestock grazing and small-scale fishing; as well as regulating the flow of the Shire River downstream (flood control and storage, dry season flows) and supplying it with nutrient-rich sediment (Ramsar Site Information Service, 2017). Efforts are underway to designate Elephant Marsh as a Community Conservation Area (CCA).

Land cover in the Project landscape was historically Miombo woodland. However, a recent study that subdivided the ecosystem types further indicated that *North Zambezian undifferentiated woodland*, *Edaphic grassland on drainage*, *Deciduous forest* and *Lower Shire swamp* occur within the area (EAD, 2020). Further details on vegetation are presented in specialist flora studies to be reviewed as part of this TOR.

Natural Habitats, as defined by IFC PS6, have been estimated in previous analyses (not yet validated) to cover approximately 8% of the landscape in the Shire River watershed within a 1km buffer of the Project footprint (deciduous forests, shrubland in protected areas, and wetlands).

Previous work (not yet validated) based on a Habitat Integrity Assessment has indicated that the aquatic habitat in the area of analysis (middle Shire, including the two main tributaries) has a range of quality conditions. Higher levels of degradation were observed in the tributaries compared to the Shire River. Mkulumadzi tributary showed evidence of good recovery at the lower part where it enters Majete Wildlife Reserve, while Lisungwi tributary showed more significant degradation overall.

4.3 BAP DELIVERABLES SCOPE

Note: throughout these ToR, “BAP Consultant” refers to the Consultant responsible for the entire scope of work as listed below and detailed in the Tasks (i.e. it concerns the development of all biodiversity management and action plans and is not just limited to the BAP in and of itself).

The scope of work requires:

- Implementation of a consultation process with relevant stakeholders and biodiversity experts to inform priorities and actions for biodiversity conservation.
- Identification of biodiversity priorities and possible actions for biodiversity conservation, in consultation with government counterparts, stakeholders and biodiversity experts.
- Proposing actions to be undertaken within a BAP and BMP to benefit biodiversity in modified, natural and critical habitats to ensure avoidance, mitigation and compensation of impacts and NNL and NG in critical habitats.
- Proposing an appropriate monitoring (indicators and targets) and evaluation system and program in a BMEP to support ensuring the successful implementation of the BAP and BMP.

To address this SoW, it is required that the Consultant:

- Review all relevant existing work completed to date, including the biodiversity (flora and fauna) surveys currently underway by national consultants under direct contract to GoM.
- Review existing biodiversity baseline information for the Project area identified within the ESIA and other studies and undertake further detailed biodiversity sampling / field surveys as part of complementary baseline assessments, as needed.
- Identify information gaps in order to deliver a final BAP, BMP and BMEP. This will include:
 - Review of the existing biodiversity assessment of the Project area and the presence of protected areas (e.g. Majete, Ramsar - Elephant Marsh).

- Undertaking necessary field work (including as necessary additional surveys) and reviewing the data obtained from the biodiversity (flora and fauna) surveys currently being implemented.
- Completing a thorough Residual Impact Assessment (RIA) that integrates all new biodiversity information (acquired through this consultancy or otherwise) and final design options. The Consultant will consult existing studies and reports but is responsible for an independent assessment.
- Scoping and conducting additional stakeholder engagement required to further the aforementioned tasks; in coordination with the ESIA Consultant, GoM and Strategic Sponsor, World Bank team, local and international experts in biodiversity, academia, NGOs working in biodiversity in the country such as IUCN, WCS, WWF, others.
- Developing an offset identification and feasibility assessment and developing an offset implementation strategy and/or plan.
- Preparation of a Biodiversity Management Plan (BMP) for the management of biodiversity impacts in modified habitats. This will include consideration of:
 - measures to address sustainable management of primary production and harvesting of living natural resources by communities.
 - invasive species that could be facilitated through the Project (fish in the reservoir, invasive species from the lower Zambezi, aquatic plants, mollusk, etc).

In addition, it is expected the BAP consultant will collaborate with the ESIA and RLRAP workstreams to ensure that:

- an integrated approach to ecosystems services is undertaken.
- proposed biodiversity avoidance, reducing, mitigation and compensation measures are updated following design optimizations and development of an updated operational regime.

The BAP consultant will also provide feedback on design optimizations and design options being evaluated by the Technical Working Group (composed of the Client, GoM and IFC).

To meet these objectives, the Consultant will undertake the below nine (9) tasks.

Please note that the BAP Consultant will need to work closely with the following consultants to ensure that relevant content can be integrated into final BAP documentation (and related deliverables):

- *Consultant responsible for delivering ESIA / ESMP documentation (and related deliverables).*
 - *Note that further Downstream Impact Assessment (DIA) is within the scope of the ESIA Consultant. It includes reassessing / updating downstream impacts to take into account the residual E&S impacts as determined in the updated Eflows Assessment and the results of the Hydro-sedimentary Studies that are currently being tendered by MHPL.*
- *Consultant responsible for delivering RLRAP documentation.*
- *Consultants responsible for flora and fauna studies.*
- *Consultants responsible for preparing Project-specific cumulative impact assessment (CIA).*
- *Consultants responsible for conducting the sediment assessment and developing sediment management procedures and mitigation measures.*

The BAP Consultant will also need to liaise with the two GoM Panels of Experts (E&S, dam safety) and integrate a summary of relevant findings of these Panels of Experts within the BAP/BMEP documentation.

Task 1: Inception Phase

The objective of the inception phase is to refine the gap analysis and work plan included in the Consultant's offer based on a detailed desk-based review of all relevant documentation and an initial Site Visit.

- Activity 1 – Project familiarization and kick-off meeting

During the inception phase, the Consultant will organize a kick-off meeting (KoM) that will be held to discuss During the inception phase, to the Consultant will organize a kick-off meeting (KoM) that will be held to brief the Consultant on the Project and ensure the Consultant has received all the available and relevant Project documentation for their review. The KoM also serves to introduce the team, discuss planning arrangements and respond to questions raised by the Consultant regarding the Project. This KoM, which might be held in person and/or as a video-conference call, will be attended by the Consultant and its team of specialists, the Client's Project team and the Lenders.

Deliverable

The Consultant will prepare minutes of meeting of the KoM.

- Activity 2 – Conduct a desk-based review of available information

The Consultant will gather and review existing studies and available data to understand the Project area and activities and perform a data gap analysis for the deliverables.

The Consultant will review the biodiversity-related documentation relevant to the Project and/or the Project area, the relevant technical studies and any other relevant documentation as soon as they are made available. This includes reviewing other related reports from the Project area (e.g. as regards the Shire Valley Transformation Project; SVTP). Note that the Consultant is required to account for the interactions of the Project impacts (both direct and indirect) as well as Project mitigation measures (including offsets) with those of the SVTP project.

In particular, the Consultant will review all data and reports produced by the national biodiversity consultants responsible for GoM-commissioned biodiversity surveys (fauna and flora). The Consultant will provide advice on how to best leverage the surveys in order to close key information gaps identified.

This documentation and data review will continue while in-country (see Site Visit). In parallel, a stakeholder analysis will be performed; to identify parties that have direct and indirect interests in both the Project and its potential impacts and who could influence the biodiversity review work.

Deliverable

Within three weeks of signing the contract and in advance of the Initial Site Visit, the Consultant will issue a preliminary inception report that will be drafted based on the desktop review. The draft Inception Report will include a detailed work plan for the study (including any anticipated data collection), timeline and expected deliverables and outcomes; to be consulted and approved by the key Project stakeholders (Strategic Sponsor/MHPL, GoM, IFC, WB). The report will list, by topic (e.g. community engagement, construction schedule, permitting process) all pending questions regarding the assumptions / methodology / organization / process / documentation that could not be answered through the review of existing documentation. The objective is to understand what the actual E&S documentation or technical study limitations were, and/or exclusions, and the reasons for these; in order to optimize the time spent in the field for the initial site visit.

The preliminary inception report will include the following content:

- Summary of the assignment scope.
- Description of activities and key findings so far.
- Preliminary Gap analysis and implications for the scope of the assignment.
- Proposed changes in initial work plan as detailed in the offer (if any).
- Issues of concern that would need particular attention during the site visit.
- Road map for the field visit (see below).

- Activity 3 – Initial Site Visit

The purpose of the field visit is for the Consultant to become familiar with the direct and indirect project impact areas and potential offset areas, with key aims being to: understand impact zones; verify stakeholders; meet and coordinate with relevant government and non-government representatives.

Prior to the field visit, **a roadmap for the planned site visit** will be prepared taking into account the availability of the various priority stakeholders. This will be submitted at the same time as the **Preliminary Inception Report**. In the site visit road map, the Consultant will propose a detailed agenda for the (i) areas to be visited, (ii) meetings with key persons/organizations to be arranged, and (iii) working sessions with the Strategic Sponsor and other stakeholders (possibly with the consultants who were involved in the previous studies) in order to make the best use of the time and resources available.

Deliverables

- **Roadmap prior to the site visit**
- **Post-site visit** (1-week post-visit): Updated roadmap (annotated) to constitute a field mission report, including actual sites visited, stakeholders encountered (and a memorandum of the discussions held), a list of documentation and data obtained, residual questions not able to be addressed, etc.
- Activity 4 – Inception Report

The Consultant will produce a succinct inception report based on an initial site visit and document review. The report will:

- summarize the Consultant's understanding of the consultancy scope, objectives and priority biodiversity features;
- identify current gaps with respect to information and tasks required for final BAP, BMP and BMEP documentation that clearly provide an assessment of the Project against the requirements of the World Bank ESF, IFC PS and GoM Regulations. As part of this work, the Consultant will review the current Areas of Influence to confirm or modify them, based on a clear rationale for their geographic delineation in relation to anticipated impacts and the nature of the relevant features.
- propose a methodology & timeline to undertake the required tasks and produce the requisite deliverables.

Task 2: Collaboration with ESIA/ESMP and RLRAP teams

The BAP will be the reference document for the ESIA/ESMP consultant to integrate biodiversity baseline, impact assessment and measures (avoidance, reduction, mitigation, compensation) into the ESIA and ESMP. As there are important links between the overall ESIA / ESMP process and outputs and biodiversity assessments (including assessing impacts on ecosystem components than can affect biodiversity), the BAP consultant must work in coordination with the ESIA / ESMP consultant to ensure that their respective scopes adequately address ESS 6 and PS 6 requirements, and GoM regulatory requirements.

The RLRAP consultant is responsible for assessing and mitigating livelihood impacts and resettlement. Social compensation can result in additional biodiversity impacts, and in turn, biodiversity mitigation and offsets can result in social impacts. It is therefore expected that the BAP Consultant coordinates with the RLRAP workstream to fully account for these cross-cutting issues in line with ESS5/PS5 and ESS6 /PS6.

The Consultant will:

- Coordinate with the ESIA Consultant and Client to integrate updated environmental and social impact (ESIA) assessments into the Final RIA and vice-versa (*thereby ensuring that the biodiversity impact assessment is fully addressed in the ESIA, and relevant avoidance, reduction, mitigation and compensation measures are fully integrated into the ESMP*). The Consultant will share timely information, participate in meetings, and undertake document review (of relevant ESIA chapters/ ESMP), as required, to achieve this alignment.

A key aspect of these activities concerns the Transmission Lines (TLs). The RIA (unapproved draft Rev A, May 2021) provides some information regarding the main TL to Phombeya, which indicates that the current corridor includes only a small amount of natural habitat (0.8 ha) along its 64 km length. The ongoing fauna and flora surveys include a focus on the T-Lines, which should allow for this information to be used to inform the final T-Line corridor, T-Line design and final mitigation measures.

- Liaise with the ESIA and RLRAP Consultants to determine how specific consideration of ecosystem services and their mitigation should be integrated in the BAP and ensure that relevant content is fully integrated into the ESIA, Resettlement Policy Framework (RPF), and Resettlement and Livelihood Restoration Action Plan (RLRAP).

Note: all areas planned to be used as resettlement areas will need to be assessed to evaluate the biodiversity impacts of these new settlements and relevant measures included in the BMP / BAP for avoidance, reduction, mitigation and compensation of these impacts.

Task 3: Conduct a Residual Impact Assessment (RIA)

The Consultant will review the *draft* Residual Impact Assessment (May 2021) and conduct all necessary work to produce a final RIA that will be annexed to the BAP. The final RIA will: include consideration of any recent Project design modifications; include the transmission line/s that have not yet been considered; integrate new biodiversity information arising from the 2022 fauna/flora surveys; and analyze and integrate the biodiversity consequences of the sediment impact assessment results. RIA finalization will include addressing all comments on the draft RIA provided by the Client, GoM, IFC, and WB.

This task will require close interaction with the ESIA Consultant, the GoM, IFC, WB and the Client's team (both technical and E&S).

The draft and final RIA will include:

- identification of residual impacts,
- identification of appropriate loss/gain metrics for measuring residual impacts on priority biodiversity values and key ecosystem services,
- quantification of residual impacts, including a clear statement on their significance, and
- proposed>NNL/NG targets based on the proposed metrics. The Consultant will conduct additional surveys as necessary.
- appropriate maps.

Special attention will be paid to assessing important ecosystem types for Malawi, including an evaluation of the presence and Project impacts on any threatened ecosystem types, in accordance with ESS6 and PS6.

Deliverable:

- Residual Impact Assessment (first draft)

Task 4: Proposed Offset Strategy and Preliminary Feasibility Study

The Consultant will propose an Proposed Offset Strategy and Preliminary Feasibility Study, taking into account previous work undertaken as appropriate.

The consultant will undertake this task this based on its own assessment, new data collected, discussion with the Client, GoM, IFC and WB and review of existing reports.

This includes the identification of all considerations of one or more offset measures to ensure that all priority biodiversity features subject to significant residual impacts identified in Task 3 are adequately offset to deliver>NNL or NG as required. The Consultant is not limited to considering only the currently proposed offset measures identified in existing reports. Additional proposals are welcome and expected.

Where priority biodiversity features are not subject to significant residual impacts, the final offset strategy and feasibility study will propose additional conservation actions and comment on their feasibility.

The Consultant will:

- a) review outputs of the *Draft* RIA (Task 3), ESIA/ESMP update (Task 2) and earlier offset studies;

- b) propose additional options for offsets, which could be based on the latest information, good practice and compliance with ESS6 / PS6;
- c) assess the feasibility of all offset portfolio options that are to be progressed (including considering issues related to governance, financing, and partnerships);
- d) undertake targeted site visits, baseline data collection and any other fieldwork as needed. This includes conducting biodiversity surveys of specific species in nearby sub-basins, as needed, and/or conducting other surveys in potential offset areas (*this could be necessary for better defining the specific offset potential and measures; particularly those that could be related to the watershed and riverbank restoration in the Lisungwe and Mkulumadzi tributaries, if such options are adopted*). Such surveys will be critical to verify that the identified areas can bring the anticipated benefit (NG or NNL) to the target species and identified critical/natural habitats through feasible measures.
- e) provide a clear justification of how each option will contribute to NNL/NG targets for one or more priority biodiversity features;
- f) propose mechanisms to implement each offset option, including an estimate of the budget for: implementation and operation of each measure; identification of responsibilities in each Project phase and KPI (and who is responsible for their measurement and reporting). The timeline of each offset measure, regulations required, governance, etc. must be clearly explained;
- g) account for impact interactions with existing Projects and programmes, including the SVTP, Shire River Basin Management Project, among others;
- h) undertake **stakeholder engagement and consultation**. Some of the stakeholders expected to be consulted include but are not limited to GoM, African Parks (AP) / Robin Pope Safaris (RPS), Department of National Parks and Wildlife (DNPW), EGENCO/Ministry of Energy, WBG staff, local authorities, relevant local communities, others (e.g. Lake Malawi stakeholders as necessary).
- i) identify the necessary sociological and socio-economic studies to understand the potential social impacts of the offset options that are being assessed, as well as to feed into the detailed offset feasibility studies (*which, in general, will require local stakeholder adherence and acceptance of any implications to ensure they are sustainable*). Such social studies may also contribute to identification of alternative or complementary measures to ensure overall NG / NNL; for example to work with fishermen on reducing overall fishing pressure, particularly on endangered species.
- j) propose capacity-building activities for key stakeholders including sharing experiences on offset design, development and implementation in other countries and any similar contexts.

Deliverables:

Preliminary Offset Strategy and Feasibility Study (draft and final versions)

Task 5: Offset Strategy and Implementation Plan

The Consultant will propose and develop an offset strategy and offset implementation and management plan to guide the implementation of selected offsets and additional conservation actions.

The Consultant will convene a workshop to agree final offset measures based on the output of this task. The workshop will involve all key parties (the Client, GoM, IFC and WB) and will be informed by relevant community consultation activities. If additional studies are required, these will be identified and detailed.

The Offset Strategy and Implementation Plan will address, amongst other subjects, all aspects required for demonstrating offset feasibility and its implementation including:

- Proposed implementation arrangements, including the governance structures and institutional arrangements that clarify roles and responsibilities amongst the Mpatamanga Hydro Power Limited (MHPL) company, the GoM and third parties;
- Identification of any required regulatory changes to provide legal status for the offset;
- metrics, including interim indicators, to measure and demonstrate NNL/NG targets;

- demonstrated understanding of the regulatory context and constraints, including identification of any regulatory changes needed to facilitate the offset/s;
- a Monitoring and Evaluation plan (for all Project phases). The monitoring plan must include targets and indicators that will be validated by the Client, GoM, IFC and WB. There must be a clear description of the indicators, the frequency of their measurement, responsibility for their measurement, specific tools required (drones, cameras, IT tools etc), as well as all reporting, modalities and the communication strategy, etc.
- budget and long-term sustainable financing strategy;
- the nature of community participation and planned mitigation of any social impacts.

Deliverables:

Offset Strategy and Implementation Plan (draft version)

Task 6: DFT BAP, BMP and BMEP incl. Implementation Plan

In the final Inception Report, the Consultant will propose a BAP and BMEP table of contents and structure for Client and relevant stakeholder approval. The structure and proposed content must meet all GoM regulatory, WB ESF and IFC PS requirements. In its Inception Report, the Consultant must demonstrate how each of these requirements has been taken into consideration in preparing the draft structure. The Consultant must also articulate how it has drawn on GIIP and its implementation experience to develop this. Task 6 involves the preparation of these key deliverables in accordance with the previously agreed structure (inception phase).

It includes:

- a) Preparation of the first draft of the BAP, BMP and BMEP based on the RIA (task 3) and the draft ESIA/ESMP, including undertaking a critical review of existing measures and proposing additional measures as needed.
- b) Cross-checking of the baseline, impacts and mitigation actions to ensure they match those of the updated ESIA/ESMP documentation.
- c) Integration of Final RIA results into the above-mentioned plans.
- d) Integration of the Final Offset Strategy and Implementation (including Feasibility Study) results into the BAP.
- e) Confirmation that the mitigation measures and offset portfolio can achieve NNL/NG targets (including evaluation of the added value of the proposed measures with regards to existing and future planned programs/projects, such as the SVTP and the Shire River Basin Management Programme), and
- f) Preparation of a roadmap and proposed arrangements for BAP implementation, including a detailed budget and timeline.
- g) With GoM, developing the regulatory framework needed to maintain the offset in perpetuity and agree financial sources for financing the mitigation measures and offsets.
- h) Development of Biodiversity Management Plan (BMP), specific to the management of biodiversity aspects related to modified habitats; in particular during the construction phase.
- i) Development of Biodiversity Monitoring and Evaluation Plan (BMEP), based on KPIs identified for each mitigation / offset measure and, potentially, equation and metrics for Net Gain (to be agreed). The BMEP will govern biodiversity monitoring during the construction and operational phases.

Deliverables:

- 6a: BAP
- 6b: BMP
- 6c: BMEP

Task 7: BAP Stakeholder Engagement

As needed, plan and hold a consultation workshop in Malawi with key stakeholders. Workshops will likely be needed for the following aspects, but other workshops may be required. Within its Inception Report it is expected that the Consultant will detail its approach to BAP stakeholder engagement, including workshops:

- present the draft BAP, BMP and BMEP to the WB and GoM team to inform decision-making in preparing to present the Mpatamanga Project to the WB Board for appraisal (inclusive of Final BAP).
- present the draft final BAP, BMP and BMEP, including the Implementation Plan and Offset Agreements to ensure agreement amongst key stakeholders regarding the outcome and actions proposed in the draft Final BAP and associated plans and provide clarity on the implementation timeline, budgets and responsibilities.

Note that all stakeholder engagement templates are to be agreed upon with the Client and key stakeholders in advance of workshops.

Deliverables

- Stakeholder mapping and engagement strategy report specific to the BAP/BMEP scope – incl. engagement with ESIA, RLRAP, CIA, Fauna/Flora Consultants, local authorities, communities. This should include a section indicating/mapping the key anticipated or indicative stakeholder consultation and engagement opportunities/events (e.g. workshops) according to the various stages and Tasks involved in the BAP/BMEP. The BAP/BMEP -specific SEP will align with the Project SEP being developed by MHPL. **(include in Inception Report)**.
- Preparation of engagement/communication materials related to BAP scope including: overview PPT presentation of BAP scope and deliverables, Frequently Asked Questions (FAQs), potentially relevant brochures and pamphlets etc *(scope to be discussed and agreed with the Client)*.
- Reports for each workshop and other consultation activity including Minutes, Presentations (MS PowerPoint / Adobe PDF), Attendance Records. These may be attached as annexes to DFT and Final BAP reports) and should be prepared using Client-provided Engagement templates.
- See also comments in Task 8 Deliverables regarding preparation of a non-technical summary and supporting communication materials in local language/s.

Task 8: Complete advanced Drafts of the BAP, BMP, BMEP

Complete the advanced drafts of the BAP and other documents (BMP, BMEP, offset strategy and implementation plan, etc) **to accompany the WBG Environmental and Social Safeguards disclosure package**. This shall include the outcomes of Tasks 1-7.

This task includes completing the full set of BAP and related documents, taking into account the design freeze and technical and E&S schedules and budgets (for the construction and operational phases). This includes integrating within relevant deliverables the record of the workshop to agree on final offset options, and also integrating the sediment impact assessment results and associated mitigations.

After the relevant consultations (see Task 7), the Consultant will include a chapter in the BAP and BMP that describes the feedback received during the stakeholder consultation workshops and summarises how this feedback has been addressed within the final deliverables.

The Consultant is required to coordinate consultation activities with the Client's Social Team, as well as the ESIA and RLRAP Consultant teams, and also relevant GoM agencies including the GoM Mpatamanga PIU.

Deliverables

This deliverable is to include revised earlier chapters and remaining drafts of all remaining chapters and plans (as listed above) to suitable quality to integrate in the Mpatamanga Safeguards Disclosure package.

These draft documents will be disclosed together with the ESIA/ESMP, RFP/RLRAP, Project-specific CIA, and other required safeguards documentation.

A summary of the BAP, BMP and BMEP will need to be prepared in the local language/s and appropriate communication materials may need to be prepared (poster, etc) to facilitate communication of complex topics for stakeholders.

Task 9: Prepare Final versions of the BAP, BMP, BMEP

Based on the comments received on the deliverables from Tasks 3-8, a comprehensive process of quality control and document review shall be carried out.

The Consultant will develop final versions of the BAP, including BMP, BMEP and Offset Implementation Plan to be applied during Project implementation. This will integrate construction supervision measures by MHPL of work undertaken by Project Contractors.

The Consultant will conduct a final workshop in Malawi with key stakeholders to ensure agreement with the outcome and actions proposed in the Final BAP (and related deliverables) and provide clarity on the implementation timeline, budgets and responsibilities assigned to, and agreed amongst, various stakeholders including MHPL, GoM and other relevant parties.

Deliverables

The Consultant will submit the following final reports:

- BAP, including RIA, Offset strategy and implementation Plan in annexes as well as the results of stakeholder engagement workshops.
- BMP, with the results of stakeholder engagement workshops in annex;
- BMEP with clear presentation of all monitoring parameters, locations, frequency, methodology, KPIs, with responsibilities and budgets assigned. A clear process for evaluation of results will be presented.

The Consultant will assist the Client to publicly disclose the final revised and approved documents; including supporting the preparation of relevant communication and engagement materials in relevant languages.

4.4 KEY DELIVERABLES

The expected **key deliverables** associated with the Mpatamanga Project BAP / BMP / BMEP are presented in the table below.

Key Deliverables
BAP Stakeholder Engagement Plan
Residual Impact Assessment (RIA) Report
Offset Strategy and Implementation Plan
Biodiversity Action Plan (BAP)
Biodiversity Management Plan (BMP)
Biodiversity Monitoring and Evaluation Plan (BMEP)

4.5 TEAM PROFILE

The Consultant is expected to demonstrate the range of qualifications, skills, knowledge, and experience to effectively conduct this assignment including:

- Previous experience and working familiarity with WBG Safeguards, WB ESF & IFC Performance Standards;
- Malawi -specific resource knowledge and experience;
- Past experience in the hydropower sector and/or similar industry sectors; and
- A multidisciplinary team of professionals trained in applicable fields of study, such as in environmental engineering, environmental sciences, biology, geology, social sciences, civil engineering, and/or archaeology, as relevant.

The consulting firm (or consortium of firms) must meet the following minimum requirements:

- At least 15 years of experience in developing and implementing IFI- compliant BAPs and BMEPs for IFC and/or World Bank financed projects in complex developing countries/emerging markets contexts; preferably in the Sub-Saharan region.
- Project experience in BAP planning and management.
- Project experience working with Govts to plan and coordinate BAP, BMP, BMEP preparation.
- Minimum 10 yrs. experience in NNL/NG approaches, including development of loss/gain metrics, offset feasibility assessment, offset design and implementation in the context of IFC and/or WB financed projects in complex developing countries/emerging markets contexts; preferably in the Sub-Saharan region.
- Significant experience in African aquatic habitats, including ecology and associated risk management and monitoring, preferably in eastern or southern Africa.
- Proven track record of successful E&S assessment of projects under the framework of World Bank Operational Policies and/or Environmental and Social Framework (ESF) (2017), IFC Performance Standards (2012), Equator Principles 4, and World Bank Group EHS Guidelines.
- Proficiency in English and Chichewa, and partnership with a local consultant is preferred.

The Consultant is expected to have the qualifications, skills and experience to execute this SoW. The Consultant will be selected based on demonstrated expertise and years of relevant experience in the following areas: technical, environmental and social expertise in the development of large infrastructure projects in developing countries; hydropower projects; and regional/country experience.

The Consultant's team is expected to have experts who are familiar with the local area and have the appropriate language skills and should include local experts wherever possible. International consultants should demonstrate significant knowledge and experience on the biodiversity of Malawi or nearby countries in Eastern or Southern Africa. The team should also have a gender balance if possible and include Malawian biodiversity experts team members (strongly encouraged).

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