



Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS)

Concept Stage | Date Prepared/Updated: March 19, 2020 | Report No: PIDISDSC24144



BASIC INFORMATION

A. Basic Project Data

Country Africa	Project ID P165704	Parent Project ID (if any)	Project Name Mpatamanga Hydropower Project (P165704)
Region AFRICA	Estimated Appraisal Date Aug 31, 2020	Estimated Board Date Nov 19, 2020	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Government of Malawi - Electricity Generation Company (Malawi) Ltd.	Implementing Agency Ministry of Natural Resources Energy & Mining	

Proposed Development Objective(s)

The objective is to increase hydropower generation capacity through a public private partnership in Malawi.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	1,070
Total Financing	1,070
of which IBRD/IDA	350.00
Financing Gap	0.00

DETAILS

Private Sector Investors/Shareholders

Equity	Amount	Debt	Amount
Government Contribution	78	IFI Debt	222.00
Government Resources	78	IDA (Credit/Grant)	222.00
Non-Government Contributions	183	Commercial Debt	587.00
Private Sector Equity	183	Guaranteed	200.00



		Unguaranteed	387.00
Total	261		809.00

Payment/Security Guarantee

Financed by IDA Credit		50.00
Total		50.00

Environmental Assessment Category

A - Full Assessment

Concept Review Decision

Track I-The review did authorize the preparation to continue

Have the Safeguards oversight and clearance functions been transferred to the Practice Manager? (Will not be disclosed)

No

Other Decision (as needed)

B. Introduction and Context

Country Context

- Malawi is a landlocked country in southeastern Africa, bordered by Zambia, Tanzania and Mozambique, with a population of about 17 million people.** The population growth rate is estimated at 2.9 percent per annum, and is expected to reach 23 million by 2025. Malawi remains an overwhelmingly rural economy, however, the country is urbanizing at an annual rate of about 3.5 percent, higher than the average for Sub-Saharan Africa.
- The economy is largely agrarian and extreme poverty is widespread.** Agriculture represents about 30 percent of GDP, over 80 percent of total export earnings, and 85 percent of employment. The prevalence of low-productivity rain-fed agriculture constrains poverty reduction. Macroeconomic instability over the years and the predominantly agricultural economic structure, have contributed to the slow pace of poverty reduction. The current estimates using the international poverty line of US\$1.90 per day indicate that 69.4 percent of the population was classified as being poor in 2017.¹ Malawi is ranked 171 out of 189 countries on the United Nations Human Development Index².
- Medium-term economic prospects appear positive as the country recovers from the recent weather-induced shocks in 2016.** The agriculture sector is heavily dependent on rainfall. In recent years, climate variability has led to a recurrence of floods and droughts in various parts of Malawi. Real GDP growth after two consecutive years of drought fell below 3 percent in 2016 but picked up to 4 percent in 2017. Inflation dropped from 9.9 percent in March 2018 to 9.3

¹ World Bank (2017). Malawi Economic Monitor – Realizing Social Protection’s Potential, Macroeconomics, Trade and Investment Global Practice, Washington, DC: The World Bank.

² United Nations Development Programme – Human Development Indices and Indicators: 2018 Statistical Update.



percent by March 2019.³ Economic patterns show signs of positive structural change, with the share of agricultural employment falling and that of more productive sectors like industry and services increasing.

Sectoral and Institutional Context

4. **The energy sector is characterized by one of the lowest electrification rates in the world.** Currently, the electricity rate stands at 11 percent with severe disparities between urban (42 percent) and rural areas (4 percent)⁴. The inequity among the rich and poor is stark – the poorest 20 percent reports 1 percent and the richest 20 percent reports 31 percent electrification rate.⁵ Access to electricity and reliability of the network are major constraints for the private sector. As per the latest 2018 Doing Business Report, procedures, time and cost to get connected to the electricity grid as well as the reliability of the electricity supply and the transparency of tariffs in Malawi are ranked extremely low (169 out of 190 countries) and below the Sub-Saharan Africa average.

5. **The hydro-dependent energy mix is vulnerable to hydrologic variability.** Malawi has a total installed generation capacity of 482MW, demand is estimated at around 440MW leading to a supply deficit due to the low availability of hydropower especially during the dry season. In addition, the hydropower sources are exposed to hydrologic variability and severe droughts in prior years have led to reduced water levels in Lake Malawi and consequently, reduced flow rates in the Shire River. This shortage resulted in prolonged load shedding of up to 12-16 hours a day but according to ESCOM, the situation has abated somewhat with the introduction of new diesel generation leading to average load shedding being reduced to 6 hours a day from 2018 onwards. About 108 MW of emergency diesel generation capacity has been installed to immediately assist with the supply deficit, although at a high cost of about US\$0.42 per kWh. Malawi is also not interconnected to the Southern African Power Pool (SAPP) and is not able to engage in power trade with any of its neighboring countries, which would help to ensure security of supply.

Table 1: Existing hydropower plants in Malawi

<i>Nkula A</i>	<i>24 MW - 3 units at 8 MW each, installed in 1966</i>
<i>Nkula B</i>	<i>100 MW - 3 units at 20 MW each, installed in 1980</i>
	<i>1 unit at 20 MW, installed in 1986</i>
	<i>1 unit at 20 MW, installed in 1992</i>
<i>Tedzani I</i>	<i>20 MW - 2 units at 10 MW each, installed in 1973</i>
<i>Tedzani II</i>	<i>20 MW - 2 units at 10 MW each, installed in 1977</i>
<i>Tedzani III</i>	<i>50 MW - 2 units at 25 MW each, installed in 1996</i>
<i>Wovwe Mini Hydro</i>	<i>4.5 MW - 3 units at 1.5 MW each, installed in 1995</i>
<i>Kapichira Phase I</i>	<i>64 MW - 2 units at 32 MW each, installed in 2000</i>
<i>Kapichira Phase II</i>	<i>64 MW - 2 units at 32 MW each, installed in 2012</i>

6. **The energy sector is limited by the weak financial position of the utility ESCOM.** The average electricity tariff is insufficient to meet ESCOM’s cash flow requirements. Due to its financial situation, the utility has no borrowing capacity and the Government has been assuming debt for meeting ESCOM’s capital expenditure needs. As a result of its financial position, ESCOM (i) has not been able to perform regular operation and maintenance (O&M), which led to poor customer service including service interruptions and increased restoration time; and (ii) has focused on only connecting

³ Consumer Price Indices (March 2019): The GoM National Statistical Office.

⁴ Kojima M. and Trimble C. (2016): Making Power Affordable for Africa and Viable for Its Utilities

⁵ Kojima M., Zhou X, Han J., de Wit J., Bacon R. and Trimble C: Who Uses Electricity in Sub-Saharan Africa – Findings from Household Surveys - In each country, people are divided into quintiles based on per capita expenditures, with quintile 1 being the poorest and quintile 5 being the richest.



high value customers able to afford the connection charge. Minor improvements in the tariff regime have been made over time. ESCOM submitted an application to MERA to request a 60 percent increase in tariffs for the next four-year period (2018 to 2021) against which 31.8 percent was approved for the same duration, of which 20 percent was made effective in 2018/19. The average tariff for 2018/19 is MWK 88.02/kWh (about US\$0.12/kWh) and will increase to MWK 95.15/kWh (about US\$0.13/kWh) in 2021/22.

7. The GoM is addressing these challenges through a comprehensive power sector reform program to spur private sector participation especially in generation, strengthen the regulatory framework, and improve operational and financial performance.

- a. **Addressing the power supply deficit:** The GoM is aggressively expanding its generation capacity in the near-to-medium-term to ensure power supply adequacy and by matching demand growth and grid expansion plans through three major initiatives: (i) Immediate additional power from 108 MW of emergency diesel generation and 120 MW of solar PV from independent power producers (IPPs); ⁶ (ii) interconnecting to the SAPP through the Mozambique-Malawi Regional Interconnector transmission line, which will initially allow for an additional 50 MW of imported capacity from 2022 onwards; and (iii) increasing domestic generation through IPPs by embarking on reforms that attract more private investment in generation. The World Bank, under the recently completed Energy Sector Support Project (ESSP) (P099626), supported the preparation of an Integrated Resource Plan, that is, a least-cost generation and transmission expansion plan that offers a list of priority energy projects through 2037.⁷ In addition to the proposed Mpatamanga Hydropower Project, the World Bank is supporting the Government with the design and financing of the Mozambique-Malawi Regional Interconnector Project (P164354). Other donors, especially the Millennium Challenge Corporation (MCC), were also active in the sector (the MCC compact closed in September 2018). The US\$350.7 million U.S.-funded MCC compact invested in transmission and distribution system strengthening and expansion through investments in the transmission backbone project, transmission and distribution substations, and related technical assistance (TA) support.
- b. **Improving financial and operational performance of the utility:** Since mid-2016, various initiatives have been undertaken to improve the financial and operational performance of the sector entities. The US funded Millennium Challenge Corporation (MCC) is financing the implementation of ESCOM's turnaround aimed at restoring the utility's financial health and rebuilding the organization into a financially sustainable and well-managed utility. Consultants through MCC funding have recently conducted a financial modeling exercise that resulted in a set of recommendations on how to improve the financial health of the utility, including a sustainable debt management plan for ESCOM, plan for reducing ESCOM's high operating costs, a tariff adjustment methodology that will align tariffs more with costs, and new accounting policies to adhere more closely to international financial standards. The World Bank is proposing a technical assistance program to implement part of these recommendations. These interventions have already yielded results, i.e. improvement in ESCOM's tax management,

⁶ The solar IPP program entailed a solar auction, which was the first instance of this approach being used in Malawi's power sector. In addition to the 120 MW of solicited solar IPP generation, another 90 MW of unsolicited solar PV generation is also under review.

⁷ The World Bank financed, under the ESSP, the preparation of feasibility studies, environmental and social impact assessments (ESIAs), and tender documents for two large hydropower projects; and the western transmission backbone, along with solar resource mapping (Energy Sector Management Assistance Program [ESMAP] grant); and assessment of geothermal potential, wind resource mapping, and bagasse-fired generation. In addition, the World Bank prepared, through financing from the Government of Norway, the feasibility study and ESIA for the Mozambique-Malawi Regional Interconnector Project.



improved monitoring of CAPEX, and budget utilization, and improved corporate performance. The MCC also supported ESCOM to introduce stronger operational practices to improve maintenance planning and execution, which will reduce the high system losses. In addition, ESCOM has moved most of its customers from post-paid to pre-paid meters. ESCOM is also implementing a revenue protection program (RPP) and has already moved through funding from the World Bank's ESSP, 750 of its high value customers representing 50 percent of ESCOM's revenues to advanced metering infrastructure, which will reduce non-technical losses.

- c. **Strengthening transparency and effectiveness of regulatory framework:** To allow for the implementation and management of the new structure of the electricity sector that introduced the single buyer, the system and market operator, and IPPs in generation, MERA has adopted a new grid code and market rules for Malawi's electricity market. Several other efforts are underway: The Government has adopted a new National Energy Policy (2018) and a Renewable Energy Strategy (2017-30), which will improve transparency of Malawi's regulatory framework, increase predictability and generate investor confidence. Through ESMAP support, the World Bank carried out a regulatory gap analysis as well as a review of policies and regulatory instruments, including the National Energy Policy, the Renewable Energy Strategy, and the IPP Framework, which resulted in recommendations for supporting the reform process.

8. **The proposed Mpatamanga project is a flagship of GoM to contribute to reducing energy shortages and enhancing energy security.** According to the SE4All Action Agenda Report (May 2017), Malawi has more than 2,000 MW of hydropower potential with large hydro continuing to dominate Malawi's installed capacity (75 percent of capacity) in the near term (business-as-usual scenario). The proposed Mpatamanga project is on top of the priority list in the least cost generation expansion plan prepared under the Bank supported integrated Resource Plan and remains the first of the uncommitted projects recommended for financing support. However, given fiscal constraints, these projects cannot be funded entirely using public finance. Significant private capital flows need to be injected into the sector to generate the financing resources to design, build, finance, and operate these proposed power plants.

9. **The proposed project showcases a unique case of public private partnership modality embraced by the GoM for a large infrastructure asset.** The project is part of the Bank's comprehensive sector engagement under the IDA 19 program encompassing the sector value chain (generation, transmission, distribution, and access). The project benefits from the Bank's existing investment program in the energy sector. A feasibility study for the technical design of the project and ESIA along with a preliminary RAP were completed with financing from the IDA funded Energy Sector Support Project (P099626). Private finance for energy infrastructure development is a recent occurrence with the Government having owned most of the generation, transmission, and distribution assets until now. By inviting IFC to co-develop the proposed project, combined with launching the regulatory and policy initiatives to generate investor confidence, the Government has signaled its intention to invite private participation in meeting its infrastructure expansion goals. The proposed project is thereby considered to be on the forefront of the Government's intent to introduce innovation in its project development and finance framework. The Government has launched its infrastructure development platform by creating an investment climate that will source private sector efficiency gains in the design and implementation of a large infrastructure project. Further, by approving the proposed PPP structure for this proposed project, the Government intends to market-test its new policies, regulations, guidance notes, and strategies to gauge their soundness to attract private finance.

Table 2: IRP Generation Investment Plan⁸

Project	Type	Year	Capacity (MW)
Generic Solar	RES	2017	20
	RES	2018	20
MSD (LFO)	Fuel Oil	2019	19
SSD (HFO)	Fuel Oil	2019	19
Mpatamanga	Hydro	2025	350
Kapichira III	Hydro	2024	112
Hamilton Falls	Hydro	2025	96
Kholombidzo	Hydro	2026	219
Fufu	Hydro	2029	261
Pamodzi	Coal	2030	120
Generic Coal	Coal	2031	273
	Coal	2033	273
	Coal	2034	273
	Coal	2035	273
	Coal	2036	273
Lower Songwe	Hydro	2032	90

Relationship to CPF

10. According to the SCD, biomass is the primary source of energy for the majority of the population. Expanding population and lack of access to alternative energy sources imply that, with the absence of intervention, deforestation will continue at an increasing rate in the foreseeable future. The SCD states further that access to electricity is still limited and utility outages pose a major constraint to business activity. Over 90 percent of all households still have no electricity. Recent advances in electricity access have been limited and primarily benefitted urban areas. Furthermore, even in urban areas, the lack of access to reliable power is an issue. Frequent outages significantly deter new investments and force firms to invest in back-up power generating capacity.

11. The proposed project directly contributes to the Country Assistance Strategy (CAS) for Malawi FY13-16⁹, especially to Theme 1: Promoting Sustainable, Diversified, and Inclusive Growth (*Outcome Indicator 1.2: Improved ease of doing business, through improved economic infrastructure, regional integration, and better access to demand-responsive skills development*) by providing the necessary critical infrastructure investments improving the ease of doing business. Reliable electricity supply through additional generation capacity will not only lower costs and improve the profitability of business enterprises but it is also key to enabling the setup of new private sector-led enterprises which stimulate GDP growth. It also increases opportunities for poor rural and remote households to pursue income-generating opportunities, stimulating off-farm activity and economic interaction and hence can lead to more inclusive growth.

⁸ Constrained (base case) Scenario assumes that firm generation capacity within Malawi shall as a minimum be equal to the peak demand.

⁹ The World Bank Group new Country Partnership Framework (CPF) for Malawi is due in FY19. The CPF is expected to focus on growth and resilience, human development, and institutions for implementation. It will support the Third Malawi Growth and Development Strategy (2017-2022) which has five priority areas: (1) Agriculture and climate change; (2) Education and skills development; (3) Energy, industry, and tourism development; (4) Transport and ICT infrastructure; (5) Health and population.



12. The proposed project contributes to CAS Theme 2: Enhancing Human Capital and Reducing Vulnerabilities (particularly *Outcome 2.1: Improved access to quality education, reliable nutrition, HIV/AIDS services, and sustainable water supply and sanitation services*) by increasing access to electricity services through energy security for poor households, particularly in rural areas contributing to raising the quality of life, improving access for social services such as educational and health facilities as well as information technologies promoting awareness on HIV/AIDS and other diseases. Expansion of low-emission renewable energy will reduce women’s exposure to indoor air pollution. The project contributes to the achievement of security of supply, one of three sector engagement pillars covered under the Malawi SCD (under preparation), the others being improved electricity access, and enhancing the viability of sector institutions.

13. Energy is also one of five main pillars of MGDS III (2017–2022), which is the five-year medium-term implementation plan of Malawi’s Vision 2020. The proposed project is aligned with SDG 7, Sustainable Energy for All (SE4ALL), and the World Bank’s Energy Sector Directions Paper (ESDP) 15. SDG 7, SE4ALL, and the ESDP all aim to ‘ensure access to affordable, reliable, sustainable, and modern energy for all’. Finally, the project is aligned with the MFD agenda with IDA concessional resources being strategically deployed to present de-risked opportunities to the private sector to participate as service providers or financiers and contribute to the GoM’s access vision.

C. Proposed Development Objective(s)

The objective is to increase hydropower generation capacity through a public private partnership in Malawi.

Key Results (From PCN)

14. PDO level indicators:

- Hydropower generation (GWh)
- Installed generation capacity (MW)
- Private financing mobilized for hydropower development (US\$ million)

D. Concept Description

15. The project is a hydroelectric power project (350 MW) located around 40 km west of Blantyre. This is a cascade system formed by two dams: i) main dam is planned to be 45m high Concrete Face Rockfill Dam (CFRD) with an adjacent gated spillway at the right abutment which will create a daily storage 22-km-long reservoir that will flood an area of 19 km² and have a capacity of 216 Mm³; two diversion tunnels and high pressure penstock will transport the Shire river water to a surface powerhouse (800 meters downstream from the main dam) that will house six Francis turbines for a 309 MW installed capacity and a daily peaking operation; ii) a second dam downstream of the first powerhouse, a regulating dam (RD) is proposed to be located approximately 6 km from the main dam. A 400-kV double-circuit transmission line will connect the plant to the Phombeya Substation (some 64 km away). A second 6 km, 132 kV double circuit transmission line will connect the main dam to the RD. The connection of the RD substation to the Malawian grid shall be confirmed by ESCOM after final discussion and decision. The current option consists of connecting the RD substation to the Malawian grid by looping in and looping out of the existing 132 kV Line between Kapichira and Tedzani; this connection will be through another 11.4 km double circuit 132 kV transmission line. The feasibility study for the technical design of the Mpatamanga Project was reviewed by an independent engineer advising the Government and an international panel of experts. A concrete gravity dam (either conventional or RCC) seems to also be technically feasible; the final decision on the dam type will be taken based on additional considerations concerning the overall



safety of the dam and the construction cost. The project is designed as a daily storage plant, capable of operating as a peaking plant with a baseload energy component.

16. The project is located on the Shire River, between the existing Tedzani and Kapichira hydropower plants (see Figure 2 below). In the river system with the relatively limited options for responding to peak demand, Mpatamanga HPP is deemed to bring the highest value to the system if employed as a peaking plant. The sizing of Mpatamanga HPP of 350 MW (this includes 41 MW of installed capacity from the regulating dam), is confirmed as the optimum sizing for the plant, taking levelized economic cost (LEC) as the decisive criterion. A run-of-river operation would provide the same amount of energy, but only 33% would be in peak hours. Lake Malawi, located around 170km upstream, has a strong regulating effect on flows, so there should be limited seasonal variation in output. Adequate geotechnical data were gathered during the feasibility study investigations and good local construction material for the rockfill dam option was identified. A large amount of rockfill material is expected to come from the spillway excavation.

17. The project is determined to be a priority project in the Integrated Resource Plan and is selected for early development (as soon as possible) in 11 of the 12 scenarios that form the basis for IRP recommendations. According to the IRP, it is proposed to be the first hydropower project to be commissioned (in 2023).¹⁰ A feasibility study, ESIA, and preliminary RAP have already been completed with financing from the IDA funded Energy Sector Project (P099626). A technical feasibility study has been completed in 2019 including hydraulic modeling and testing of different operation scenarios.

18. The project shall be designed as a public private partnership (PPP), consistent with MFD principles, whereby the private concessionaire will use IDA credits and guarantees, alongside IFC support, to raise commercial DFI financing. The project enjoys broad based WBG support with the proposed IDA financing being used to leverage significant amount of private capital through IFC's support. IFC entered with the Government a Joint Development Agreement (JDA) for the development of the project. This entails IFC engaging in the development of the project in the capacity of a principal /potential investor. The JDA sets out the key terms of IFC's engagement, as well as the main commercial principles and terms that will need to be reflected in the eventual concession, PPA and other project agreements for the project to be 'bankable' as a PPP. As such the JDA includes provisions setting out GOM's and IFC's respective development obligations.

19. In addition, the Government and IFC entered into a cooperation agreement (CA) - an interim, simpler arrangement between GOM and IFC, enabling IFC to start in the name of the Government on certain early-stage development activities before the JDA was concluded in April 2019.

20. The overall project investment amount, financed by the Project Company, and including preparatory work, development costs, interest during construction, and contingencies is currently estimated to US\$ 1.07 billion.

21. IDA resources of US\$ 350 million shall be used to fund the following components:

Component 1: Transmission Line (US\$ 25 million): The project is expected to include a 64 km 400 kV, double circuit transmission line that will connect the Mpatamanga switchyard to the Phombeya Substation. Loading of the 400-kV line from Mpatamanga to Phombeya will be 169.2 MW for each circuit at 16.4 percent for Ckt 1 and 16.8 percent for Ckt 2. Losses for the transmission will be 0.3 MW for each circuit.

¹⁰ With the passage of time, the proposed commissioning date is now in 2025.



Component 2: Hydropower Plant (US\$ 265 million): IDA resources shall be used to contribute to the project’s capital costs, the details of which, including the form of onlending, shall be determined during project preparation. Capital costs for equipment, civil works, transmission lines, mobilization, and contingency are provided as an early estimate in the technical audit of the feasibility study. It is expected that EGENCO will own equity - funded by IDA proceeds allocated by the Government - in the project company on behalf of the Government. The Government would like to preserve its ability to be represented on the Board of the company through EGENCO, and vote on important decisions. IDA resources are expected be mobilized to cover the proposed EGENCO equity ownership in the project company.

Component 3: Technical Assistance (US\$ 10 million): EGENCO is the proposed Government entity responsible for preparing the project in partnership with IFC, and the Concessionaire. As such, a fully staffed PIU shall be formed at EGENCO to manage project preparation, the members of which will require capacity building in the supervision of complex hydropower projects. In addition, capacity building support in hydropower plant operations, and in engaging with the private sector including risk allocation, and sharing, contractual arrangements, duties and responsibilities of the public sector, and proposed financing obligations, shall be included in a comprehensive TA program.

Component 4: Guarantee(s) (US\$ 200 million cover, US\$50 million IDA allocation): In order to attract private capital required for the project, and the perceived credit risk of Malawi, the bankability of the project will likely require credit enhancement which can be provided through IDA Guarantee(s). IDA resources can be mobilized in form of Loan Guarantee(s) (US\$ 110 million) which could provide support to local or international debt. An IDA Payment Guarantee (US\$ 90 million), that would backstop a certain number of months of payments under the Power Purchase Agreements between ESCOM and the project company. The nature of the guarantee and coverage to be provided shall be discussed with the GoM, the private sponsors, IFC, lenders and with the proposed GoM transaction advisers during preparation.

The following is the financing plan proposed in the feasibility study.

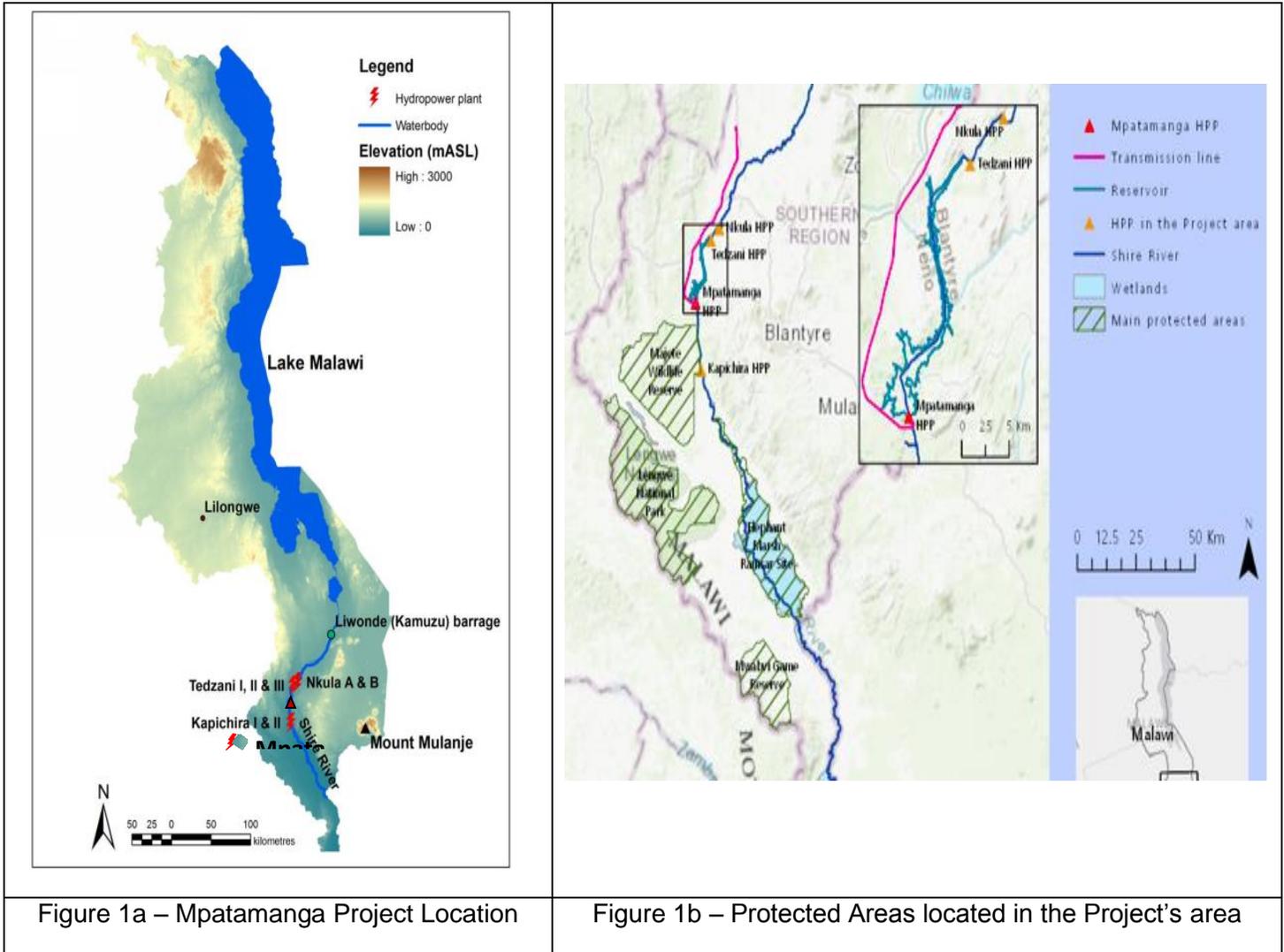
Table 3: Proposed Financing Plan

IDA	US\$ 300 million
Transmission line	US\$ 25 million
Hydropower plant	US\$ 265 million
Technical Assistance	US\$ 10 million
Commercial debt	US\$ 587 million
Equity	US\$ 183 million
TOTAL	US\$ 1,070 million
IDA Guarantees	US\$ 200 million*

*US\$ 50 million of IDA Guarantees leveraging US\$ 200 million of commercial debt.



Figure 2: Mpatamanga Hydropower Project Location



SAFEGUARDS

A. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

PROJECT MAIN CHARACTERISTICS. The Mpatamanga Hydropower Project including a regulating dam (MHP-RD) involves the construction, operation and maintenance of a greenfield hydroelectric power plant with peak capacity of up to 350 MW. This is a cascade system formed by two dams: i) main dam is planned to be 45m high Concrete Face Rockfill Dam (CFRD) with an adjacent gated spillway at the right abutment which will create a daily storage 22-km-long reservoir that will flood an area of 19 km² and have a capacity of 216 Mm³; two diversion tunnels and high pressure penstock will transport the Shire river water to a surface powerhouse (800 meters downstream from the main dam) that will house six Francis turbines for a 309 MW installed capacity and a daily peaking operation; ii) a second dam downstream of the



first powerhouse, a regulating dam (RD) is proposed to be located at approximately 6 km from the main dam. The Regulation Dam (RD) will have 41 MW installed capacity and will buffer the fluctuation impacts caused by peak generation of the main dam. The Mpatamanga Hydropower Project (MHP-RD) will transport the electricity generated from the first powerhouse through a 400-kV double circuit transmission line (64 km of length) connecting the plant to the Phombeya Substation. A second 6 km, 132 kV double circuit transmission line will connect the main dam to the RD. The connection of the RD substation to the Malawian grid shall be confirmed by ESCOM after final discussion and decision. The current option consists of connecting the RD substation to the Malawian grid by looping in and looping out of the existing 132 kV Line between Kapichira and Tedzani; this connection will be through another 11.4 km double circuit 132 kV transmission line.

POLITICAL LOCATION. The proposed MHP-RD is located in the Southern Region of Malawi at the boundaries of Blantyre and Neno districts and about 40km from the city of Blantyre. The Project's main transmission line 400 kV (64 km) will cross the same districts and will connect Mpatamanga powerhouse to Phombeya Substation and to the national grid.

RIVER BASIN AND GEOGRAPHICAL LOCATION. The Shire river originates at the southern shore of Lake Malawi of which it is the only outlet of this unique lake and travels about 400 km south before joining the Zambezi river in Mozambique. The proposed project is located in the Middle Shire, in the Mpatamanga Gorge, 295 meters above sea level and about 145 km south of Lake Malawi. The Middle Shire area is dominated by a great trough which forms the Shire Valley and the Highlands which form its eastern and western walls. The Shire river is characterized by the presence of terraces and rapids in the river's course.

The Shire river is divided into three distinct areas based on differences in altitude, hydrology and fluvio-geomorphology:

- i) Upper Shire - extends from Lake Malawi to Lake Malombe to the first dam in the watershed i.e. the Kamuzu Barrage along a very shallow gradient.
- ii) Middle Shire – the river crosses a flood plain and then drops steeply by 360 meters over a distance of around 70 km through a series of rapids and falls. This section has been harnessed to provide run-of-river hydropower (the Nkula HPP, the Tedzani HPP and the Kapichira HPP which are already operating). The MHP-RD will be located between the Tedzani HPP and the Kapichira HPP. Hence, the project will need to consider the cumulative impacts the project will bring to the river and ecosystems.
- iii) Lower Shire –after the falls at Kapichira, the river flows across a wide floodplain and reaches the Elephant Marsh Ramsar wetland, to later join the Zambezi River.

ENVIRONMENTAL CHARACTERISTICS

Biogeography. The project influence area is primarily in the Zambezian biome where the natural vegetation is a range of savannah woodland formations. On higher slopes, elements of the Afromontane biome are present, in the form of evergreen lower montane forest. Malawi and the whole Shire Basin are part of the Zambezi river basin and this basin hosts a rich flora and fauna, making this area a hotspot of biodiversity and endemic species.

Forest cover. Largely natural ecosystems have been degraded through conversion to agriculture, firewood and charcoal collection. Levels of degradation are lower in the protected areas in the project area, but even these areas have been affected by encroachment, wood collection, and hunting. Data from the 2015 land cover map in the Shire River Basin Atlas (NIRAS 2016) and preliminary ESIA indicates that in the project's influence area (including that of the proposed alignment of the Transmission lines) the dominant land uses are: permanent and subsistence agriculture (modified habitats); savannah woodlands and riparian forest along the river, shrubland, wetlands (Elephant marsh), villages and towns. Savannah woodland formation are dominated by *Brachystegia*, *Julbernardias* and *Isoberlinia* species which can be observed at higher slopes, including at the Majete Wildlife Reserve (Critical habitat) above 400 m. At lower altitudes



along the Shire Basin and the project area, dominant plant species include *Acacia* sp. and *Combretum* sp.

Biodiversity. Despite the presence of four dams (three hydropower plants are already operating, along with one regulating dam/barrage), the Middle Shire hosts very important natural and critical habitats. The proposed project in the Middle Shire is located in an area of sensitive ecosystems in the Shire river basin which includes three important conservation areas (key biodiversity areas): Majete Wildlife Reserve immediately downstream of the project (6 km from the main dam and less than 200 meters from the regulating dam), Lengwe National Park at the western margin of the Shire river, and the Elephant Marsh RAMSAR site downstream of the project (about 30 km). In addition to their role as biodiversity reserves, these parks are important landscape features as they represent the last sizeable forested areas that are noticeable from a distance. Also the section of the river where the project is proposed is one of the last remaining stretches of the river much conserved. Potential impacts of the project in these protected areas and their species will be considered in the environmental and social assessment of the project.

The Majete Wildlife Reserve is the nearest protected area from the project, with its northern boundary 7 km south of the future powerhouse and less than 200 meters from the proposed regulating dam. This protected area of 70,000-hectares provides a home for many of Africa's iconic species: leopards, elephants, water buffalo, black rhinos, sable antelopes, elands, lions, and hyenas. Large numbers of hippo and crocodile can be found in streams, in the Shire river, and along the banks of the Shire River.

The Elephant Marsh Ramsar site. At about 60 km south, downstream of the project, the Elephant Marsh is Malawi's second designated Ramsar wetlands area, covering 61,500 ha and is Malawi's first Community Conservation Area. The area is important in maintaining the Shire Valley's hydrological regime through flood control, water storage and supply of nutrient-rich sediment. It is a mosaic of swamp vegetation, grassy margins and reed beds, interspersed with islands, supports over 20,000 water birds, some with Critical Habitat values, providing a source of fishing and other livelihoods for thousands of local residents.

Social Characteristics.

Three small villages are in the upstream project area - Chaswanthaka and Chikira villages in Blantyre district and Kambalame in Neno district. A school (of about 800 students) lies close to the proposed reservoir and will be affected by construction works, with access interrupted by the construction site. The risk of flooding, accidental drowning and exposure to vector-borne disease will remain during operation of the MHP-RD.

The risk that the project may affect a significant number of small-scale subsistence farmers practicing recession agriculture along the Shire River has been reduced through the introduction of a regulating dam and reservoir, however further work is needed to identify the extent of remaining displacement. The majority of the affected population are poor smallholder farmers cultivating small and fragmented pieces of land held under customary land tenure. There are also farm workers in the private estates above the dam that will be economically displaced. Physical and economic displacement is anticipated for: i) the area around the main dam, its reservoir area, powerplant, etc and ii) the regulating dam, its powerplant and reservoir on the Shire River. There is also a risk of possible economic and physical displacement from the construction of the access roads, quarry, borrow pits, and the main transmission line.

It is estimated that about 121 households from three small villages (Chaswanthaka and Chikira villages in Blantyre District and Kambalame in Neno District) and a school (of about 800 students) and about 43-50 households along the main transmission line and access roads, will be affected by the construction works. The project will also impact local livelihoods and generate increased social risks related to construction-induced immigration. Local communities will also be exposed to the risk of flooding, accidental drowning, and exposure to vector-borne disease during operation.



RISK CLASIFICATION. The Project has been classified as Category A project under OP 4.01 because of the potential environmental impacts, and social impacts on local communities.

B. Borrower's Institutional Capacity for Safeguard Policies

GOVERNMENT OF MALAWI. The Government of Malawi, through its Ministry of Natural Resources, Energy and Mining (MoNREM) signed a Joint Development Agreement with IFC to co-develop the proposed project. A private company will be specifically established to develop and operate the proposed MHP-RD and thus meets the criteria envisaged under the OP 4.03 'Performance Standards for Private Activities' which requires the application of the World Bank Performance Standards.

The GoM has developed, with the support of IFC, preliminary environmental and social assessments supported by environmental and social consultants and technical firms (Multiconsult, SNPower, TBC, and others). The Government of Malawi with the support of IFC will be responsible for completing all final assessments, plans and Standards/safeguards instruments prior to appraisal.

It is expected also that the GoM will be responsible for among other activities: i) securing the land for the project, including the land to be inundated by the two dams, ii) right of way for the transmission line to Phombeya Substation, iii) livelihood restoration activities jointly with the Mpatamanga Project Company; iv) sharing operation and maintenance activities with the Strategic Sponsor potentially through the national power generation utility EGENGO (Electricity Generation Company Malawi Limited); and v) leading the operation and maintenance of the Grid System up to the Delivery Points through ESCOM (Electricity Supply Corporation of Malawi Limited).

MPATAMANGA PROJECT COMPANY. The Project Company (a Special Purpose Vehicle) which will be jointly owned by the Government of Malawi (potentially through EGENGO), IFC (potentially), and a Strategic Sponsor (a private company), will be responsible for overall project development (design, construction, finance, and operation). The project company (together with the Government of Malawi where applicable) will have full responsibility for the implementation of all environmental and social instruments prepared for the project (plans and measures) agreed with the World Bank and IFC in all project areas (including reservoir area, access roads, the two dams, the two powerhouses, transmission lines, downstream areas, and all other project components of the two hydropower plants). The project company will prepare the bidding documents and will hire the contractors for the construction of the power plants, dams, transmission lines and all associated infrastructure for construction of the MHP-RD.

STRATEGIC SPONSOR. The GoM will select competitively a *strategic sponsor* which will be a private company with whom the GoM will enter into an agreement for the development, financing, construction, operation and maintenance of the project.

At this concept stage, the Mpatamanga Project company does not exist nor has the Strategic Sponsor been selected, therefore, the capacities for environmental and social management of both entities cannot be assessed at this concept stage. The World Bank and IFC have agreed with the GoM, the responsibilities that Project Company will have to comply with the technical, environmental, social, health and safety requirements of OP 4.03, Performance Standards, World Bank requirements, and good industry practices for hydropower development.

The Strategic Sponsor will: i) have experience in the application of performance standards in hydropower development,



ii) hire and maintain during construction and operation an environmental management unit with trained and professional staff in environment, social, health and safety fields; iii) hire and maintain throughout project construction and operation full time and experienced environmental and social officers to ensure capacity for compliance and enforcement of national regulations, requirements on Environmental, Social, Health and Safety management of IFC (ESMS, ESMP) and agreed World Bank safeguards measures; iv) establish internal E&S management, supervision and monitoring and reporting functions and provide capacity building for proper implementation of environmental and social agreed plans; v) implement all environmental and social management plans for the project; vi) prepare and complete the ESMS in accordance with IFC PS and World Bank requirements for the project. The Final ESIA/ ESMP and ESMS will be reviewed by the World Bank and these will be disclosed prior to appraisal.

The ESMP and ESMS will specify training and other activities to strengthen the project company's capacity to address E&S safeguards issues and propose a robust system for E&S supervision of civil works during construction and later during operation of the two hydropower plants. In addition, the ESMP and ESMS will describe the responsibilities of the strategic sponsor, contractors/subcontractors, and supervising engineers regarding E&S management in the construction and operation of the project.

Other Government agencies that would have specific roles in project implementation include:

- Ministry of Lands and Housing (responsible for surveys, land registration and titling and resettlement/compensation within the area);
- Environmental Affairs Department (EAD, responsible for environmental reviews and approvals);
- Department of Antiquities (DoA, responsible for cultural heritage)
- Department of National Parks and Wildlife (DNPW, with oversight responsibility for the Majete protected area and Elephant Marsh).

Other important stakeholders for the project include:

- African Parks- this is an international NGO that manages the Majete Refuge under a legal agreement with the DNPW.
- Ramsar Convention – it supervises the Elephant Marsh which is a Ramsar wetland.
- Hydropower plants operators upstream and downstream from the project (such as the Tedzani HPP and the Kapichira HPP).

C. Environmental and Social Safeguards Specialists on the Team

Ian Munro Gray, Environmental Specialist
Ruth Tiffer Sotomayor, Senior Environmental Specialist
Nicholas Zmijewski, Environmental Specialist
Luciano Canale, Senior Hydropower Specialist
Violette Mwikali Wambua, Senior Social Specialist

D. Standards that might apply



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
PS 1: Assessment and Management of Environmental and Social Risks and Impacts	X		

Based on the preliminary risk and potential impacts identified at concept stage, the project is proposed as a Category A on the basis of the criteria of the World Bank’s Operational Policy 4.01 and PS 1. The project will finance the construction of two dams for the Mpatamanga Hydropower Project (MHP-RD) (Component 2), and the required transmission lines from two powerhouses (Component 1), which will generate significant impacts and permanent changes in the current river flow of the Middle Shire river, the main outflow of Lake Malawi. In addition, the project’s direct area of influence includes high value biodiversity areas (national protected areas and of international importance – a Ramsar site) for which the project has taken actions to avoid and reduce impacts, which will be further assessed during project preparation.

Environmental and Social Assessment. The GoM developed a preliminary ESIA and ESMP (AGRI-PRO Ambiente 2018) based on the original MHP project design and feasibility studies (Fichtner 2017). This EIA included preliminary baseline information, consultations and evaluation of impacts and risks, however, it did not consider the potential impacts of the proposed peaking operation on the Majete Wildlife Reserve and the Elephant Marsh (Ramsar Site No. 2308) about 30 km downstream of the proposed original dam site; nor alternatives for downstream regulation or environmental flows. After this preliminary EIA, further due diligence was conducted in coordination with the GoM, IFC, and the World Bank to improve environmental and social evaluation and technical design by preparing additional assessments and studies (hydrologic analysis, hydraulic modelling, environmental flow assessment, critical habitat assessment, preliminary Biodiversity Action Plan and a Preliminary RAP), field work, and stakeholder consultations. As a result of these studies, the project’s original design has changed to include an additional dam (“Regulating dam”) with the aim of mitigating the potential impacts that peaking operation of the main dam could have generated in downstream ecosystems (Majete Wildlife Reserve and the Elephant Marsh).

The GoM, with the support of IFC, is now coordinating the preparation of the Final ESIA and ESMP (including the preparation of the Biodiversity Action Plan (BAP) Phase II, and Resettlement Action Plan). The Final Environmental and Social Impact Assessment (ESIA) will be prepared for the proposed activities described in **Component 2 (MHP-RD)** and assess the current changes in the project design and associated facilities (access roads, workers’ camp, quarries and borrow pits, etc.).

Component 1. This component will support the construction of the 64km, 400 kV double circuit transmission line to the Phombeya Substation; a second 132 kV transmission line (of approximately 6 - 17.4 km pending final decision from ESCOM) to connect the switchyard of the regulating dam with this power line and thereafter, the RD to the 132kV Kapichira-Tedzani transmission line; and temporary access roads and camps.

Component 2. The proposed works include the construction of the Mpatamanga Hydropower Project with a regulating dam (MHP-RD) which will include: i) a 45m high Concrete Face Rockfill Dam (CFRD, main dam), intake and a gated spillway at the right abutment; ii) a daily storage 22-km-long reservoir (216 Mm³), iii) diversion tunnels, headrace tunnels, powerhouse (for a 309 MW installed capacity), switchyard, and tailrace and iv) a Regulating dam with 41 MW installed capacity (downstream the main dam and upstream of the Majete Wildlife Reserve). The final technical and operational characteristics of the ‘Regulating dam’ are under final analysis. This component will also support: ancilliary works (such as realignment of the existing road, power line and water supply for the construction sites), transport of materials, blasting and excavations, quarry and borrow pit operations, construction of camps,



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p data-bbox="118 285 837 317">fuel storage areas, waste management areas, among others.</p> <p data-bbox="118 357 1494 564">The Final ESIA/ESMP will include a separate volume for the assessment of the direct, indirect, cumulative impacts and risks of the Transmission lines, substations and associated and ancillary facilities. The Final ESIA/ESMP will also assess any environmental and social liabilities due to current construction of the Phombeya Substation and define remediation measures as needed per OP 4.01. An important aspect to assess will be the potential impact of the alignment of the transmission lines with avian migratory routes or risks due to electrocution and perching and measures to reduce and mitigate impacts and risks.</p> <p data-bbox="118 604 342 636">Potential Impacts.</p> <p data-bbox="118 676 324 707">CONSTRUCTION.</p> <p data-bbox="118 711 1494 1098">Environmental impacts. The key environmental, health and safety (EHS) potential impacts and risks associated with the project’s construction activities include: (i) changes in the current river flow regime; ii) loss of about 30 km river aquatic ecosystems (from the main river and tributaries) and habitat of native and endangered and migratory species due to the creation of the reservoir; ii) downstream impact in natural and critical habitats of endangered species; iii) loss of vegetation and habitat for native and associated fauna; iv) soil excavations, disturbance and erosion, increased runoff and sedimentation of water bodies; v) increased fishing and poaching of fauna; vi) blasting and drilling that can cause vibration and affect local communities, air emissions and noise; vii) solid and hazardous waste generated from construction activities and/or accidental spills; (viii) increased hazards associated with transportation of blasted rocks and borrow material; (ix) potential health risks to workers due to working in confined spaces or heights, exposure to heat and noise, hygiene camp conditions, operation of heavy equipment and machinery; and x) increased traffic and road accidents to local people or workers.</p> <p data-bbox="118 1138 1494 1524">Social impacts. The area has three villages (Chaswanthaka and Chikila on the Blantyre District side of the Shire River and Kambalame on the Neno district) with people settled within or in close proximity of the reservoirs. There is a school in the proximity of the reservoir with about 800 pupils. Charcoal production is the dominant source of livelihood among the surveyed households while some subsistence farming is done by a majority of the households to supplement and add to the incomes from charcoal. The soil in the area is relatively infertile and the climate relatively dry, so yields are generally low and insufficient to feed households. However, the survey results show that households on average cultivate or have access to 1.3 acres or around 0.5 hectares per household. Households also keep small livestock, such as goats and chicken. In addition to the income from charcoal making and crop cultivation many of the affected households have some income from employment in four cattle ranches that are located within the reservoir area. The owners of these cattle ranches are business-people that do not live on the farms.</p> <p data-bbox="118 1564 1494 1879">A survey conducted in July 2019 registered 57 households within or close to the reservoir in Chaswanthaka, 46 in Kambalame, and 18 in Chikila for a total of 121 households that will potentially be directly impacted by the project. With regard to impacts caused by the main transmission line to Phombeya, some 40 to 55 households may be affected depending on which of the two alternative alignments is selected. Some of the potential social risks/impacts are related to: i) land acquisition leading to temporary or permanent physical displacement, including loss of assets, land and livelihoods; ii) labor influx and influx of populations; iii) transmission and spread of communicable diseases including HIV; iv) potential for Gender Based Violence, Sexual Exploitation and Abuse (assessed to be of high risk); and (v) illicit behaviour. A final Resettlement Action Plan (RAP) including a comprehensive livelihood restoration program will be prepared prior to appraisal to address loss of land, assets</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p>and livelihoods for the two dams, the two powerhouses, and the two reservoirs. An RPF will be prepared prior to appraisal to address loss of land, assets, and livelihoods due to the transmission lines.</p>			
<p>OPERATION.</p>			
<p>Environmental. The main environmental, health and safety (ESHS) impacts and risks (which will be detailed in the Final ESIA) associated with the project during operation include (but are not limited to): (i) changes in the flow regime (the regulating dam is expected to reduce these impacts but a dam will always affect the natural flows, its seasonality, distribution of species, materials (fine particulate matter, sediments, etc. a detailed aquatic biodiversity and flow monitoring program will demonstrate the dimension and extension of the impacts); ii) retention of sediment and organic matter important for lowland marshes; iii) impact on biodiversity and critical habitats and on aquatic/riparian fauna which depend on river habitats (hippos, otters, crocodiles, terrapins, shore birds); iv) sediment flushing (operational rules to eliminate flushing or to use dredging- will be assessed, cost and alternative to be agreed) can increase cumulative impacts in already affected downstream habitats; v) dam safety issues; vi) potential for colonization of exotic species in the reservoir could affect the unique freshwater species of the Shire river;</p>			
<p>The reduction of flow in the diversion reach as well as the operation of the two dams can have negative impacts on riparian and aquatic habitats. The project design includes an Environmental Flow Requirement (EFR) for the main dam to maintain the ecological condition of the river reach. A minimum ecological flow of 45 m³/s was proposed in the Preliminary ESIA (AGRI-PRO Ambiente, 2018). The Regulating Dam (RD) is expected to reduce the water pulses produced by the peaking operation of MHP, reducing the peaking impacts and discharge variability on downstream ecosystems. The project will need to define management plans for the outgrowth of water hyacinth and sedimentation issues which are already affecting the other dams in the river.</p>			
<p>Social Impacts</p>			
<p>Some of the potential social impacts (which will be detailed in the Final ESIA) might include: i) risk of accidents such as drowning; ii) increased time for local communities to access areas across the reservoir; iii) increased risks to cross the river downstream of the dams; iv) increased occurrence of waterborne diseases; v) potential impact on local fishermen livelihoods if preferred fish species are affected due to the barrier established by the two dams, among others.</p>			
<p>Potential positive impacts. The generation of electricity will benefit the national economy. The local communities could also benefit from the reservoir’s potential for attracting ecotourism. The project will need to consider the installation of safe access points, and restoration actions along the shore. Local communities will also benefit from local development plans to be agreed.</p>			
<p>Environmental and Social Management System (ESMS): The MHP-RD and its Strategic sponsor will prepare an ESMS for both the hydropower project and its transmission lines by identifying, assessing, and managing environmental and social risks and impacts (on modified, natural and critical habitats) associated with the development of the project, all in accordance with the WP PS per OP 4.03, and any additional requirement per the World Bank’s safeguards policies.</p>			
<p>The ESMS will consider direct, indirect, residual, long-term, and cumulative impacts (including riparian/cross</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p>boundary impacts) due to project development. The project company will have to develop and maintain throughout project implementation an ESMS adequate to address the level of environmental and social risks and impacts associated with the project’s construction and operation (including the transmission lines and substations). Key elements of the ESMS will include: (i) environmental, social, health and safety policy; (ii) identification of risks and impacts; (iii) management programs; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) communication and stakeholder engagement; (vii) biodiversity management plan, and (viii) supervision, reporting and monitoring. The project will cause significant impacts in the environment, but the project will support investments to avoid, mitigate and compensate impacts and increase knowledge in biodiversity which are much needed to define action plans to improve habitat conditions to much threatened and unique species of this river and region.</p> <p>Some of the environmental and social management plans and procedures that need to be developed as part of the ESMS will include (but not be limited to): i) Stakeholder Engagement Plan including a Grievance Mechanism; ii) Local Hiring and Training Plan; iii) Security Management Plan; iv) Traffic and road safety, v) Quarries and blasting management plants; vi) Waste management plan; vii) Communications plan; viii) Community Health Management Plan; ix) Cultural Heritage Management Plan; ix) Reservoir management, , x) river bank erosion control, xi) Biodiversity Management Plan (including flora and fauna rescue plan, riparian restoration plans, monitoring programs, etc), among others. The Project company will also prepare plans and procedures to address environmental accidents, and health and safety emergency situations, as well as to mitigate the associated adverse environmental, health, safety and social impacts. The ESMS should include a clear budget, and allocation of responsibilities and a sound process and actions for implementing the environmental and social plans to be agreed with the World Bank and the IFC, and in dealing with emergencies (due to natural events, accidents, etc). The ESMS implementation will be the responsibility of the Project Company and its contractors and it will follow all measures and plans described in the Final ESIA/ESMP prepared by the Government with the support of the IFC.</p> <p>The Final ESIA/ESMP will define plans to avoid, mitigate and compensate environmental, social, health and safety (ESHS) impacts and risks associated with the project during operation. These plans will be contractual responsibilities for the i) strategic sponsor and its contractors who will operate the hydro-system of the two dams; and ii) the Government utility responsible for operating and maintaining the transmission lines to be built under the project (for instance, for reducing bird collisions and electrocution).</p> <p>The Final ESIA/ESMP prepared prior to appraisal will include specific measures, protocols and technical specifications to be included in tender documents to be used by the Project Company or other private companies participating in the construction and operation of the project (works contracts and contractors’ ESMPs) on the specific plans (waste management, revegetation, communication, emergency response, labor influx, camp management, community and occupational health and safety management, cultural/archeological/heritage chance finds procedures). The ESIA will define protocols for acquisition, operation and management of auxiliary facilities (workers’ camps, equipment storage yard/s, quarries, waste management areas, borrow areas, etc.). The final ESIA/ESMP will refer to acceptable procedures on EHS as described in the WBG Environmental, Health, and Safety Guidelines: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines</p> <p>The Final ESIA/ESMP will also include the detailed institutional arrangements for environmental, health and safety supervision, reporting and monitoring processes, a capacity building strategy, results of the consultation process</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p>and the required budget for the implementation of all agreed plans to prevent and mitigate impacts. General guidance shall be provided in the ESIA/ESMPs on operation and management related to continued performance of safeguards conditions, during operation of the project and the necessary facilities or mitigatory works.</p> <p>The final ESIA/ESMP will include a Stakeholder Engagement plan, scaled to the project risks and impacts will be prepared prior to appraisal for the effective engagement of project affected persons, communities and stakeholders including those identified as disadvantaged or vulnerable. A project GRM scaled to the risks and adverse impacts of the project will be operationalized to receive feedback and queries and address complaints and concerns by affected or interested stakeholders. An internal GRM for workers will be prepared to ensure efficient conflict resolution that can occur with the workers in the construction sites and camps.</p> <p>The following safeguards instruments are expected to be prepared by the GoM with support from IFC, before appraisal:</p> <ul style="list-style-type: none"> • Final Environmental and Social Impact Assessment (ESIA), incorporating the regulating dam, and accompanying Environmental and Social Management Plans (ESMPs) for both the MHP-RD project and its transmission lines (TL). • Final Biodiversity Action Plan (BAP) and accompanying biodiversity management plan (BMP); • Cumulative Impact Assessment (CIA) considering that cumulative impacts are expected to be significant given the presence of three existing dams on Middle Shire, the proposed MHP-RD, and other WB and government projects. The project will perform a basin or sub-basin level CIA assesment and consultation with a wide range of stakeholders to identify the cumulative impacts on the terrestrial, aquatic and aerial spaces and in the Shire River’s key Valued Ecosystem Components, following IFC’s Good Practice Handbook on CIA, and World Bank requirements. • Final Resettlement Action Plan (RAP) including a comprehensive Livelihood Restoration Plan for the two dams, the two powerhouses, the two reservoirs, and potential affected downstream areas from the dams (this instrument will address the potential impacts caused by the project in areas downstream of the dams to local livelihoods (fishing, others). • RPF for the transmission lines. 			
PS 2: Labor and Working Conditions	X		
<p>A significant workforce will be required for the construction and operation of the project and further details on the expected number of workers and potential working conditions will be described in the final ESIA/ESMP and the ESMS.</p> <p>Human Resources (HR) Policies and Procedures. The Project company will prepare and implement human resources policies and procedures according the Malawi’ Labor Legislation and the requirements of this Standard Performance Standard, specifically in ensuring workers’ rights to form and join workers’ organizations, and procedures for hiring and allowing workers to express their grievances and protecting their rights without retaliation.</p> <p>Occupational Health and Safety. The client will provide a safe and healthy work environment, taking into account the associated risks in the project area and different classes of hazards in the construction areas, including physical, chemical, biological, hydrological, and specific threats to women. The project company will prepare a comprehensive set of Health and Safety plans, standards, procedures and work protocols to cover all aspects and potential risks of occupational health and safety.</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p>Instruments. Among others, the project company will prepare: i) a Labor and Worker management plan which will also describe a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns; ii) a Workers Camps, Work Sites, Workers Accommodations Management Plan, iv) Occupational Health and Safety Management Plan to protect workers and promote safe and healthy working conditions in line with this Performance Standard. A Security Management Plan will be developed to safeguard project, workers and property and to ensure that safeguarding activities are carried out to minimize risks and ensure workers and community’s safety and security, as per PS2 and PS4. Tender documents and contracts will require contractors to comply with the agreed Labor and working conditions, occupational health and safety plans and procedures. Contractors will be requested to prepare Construction Environmental and Social Management Plans based on the agreed plans to comply with national regulations and the requirements of PS2.</p> <p>The WBG team will review the specific HR processes and practices for the project to ensure compliance with the requirements of the PSs, including contracts for third party employers and the provisions for a grievance mechanism and occupational health and safety practices. The project and its contractors will ensure application of the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) and international hydropower-industry practices (GIIP) to minimize or reduce adverse impacts on human health and the environment.</p>			
PS 3: Resource Efficiency and Pollution Prevention	X		
<p>Resource efficiency. The project company will implement effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs needed to construct and operate the MHP-RD. It will also incorporate measures to reduce project-related GHG emissions during the construction and operation of the project. A full GHG emissions and climate risk assessment have been conducted and will inform the Final ESIA/ESMP to define appropriate measures to ensure resource efficiency in the project.</p> <p>Pollution prevention. The preliminary ESIA process has identified various potential project impacts on air quality, water quality, solid waste, noise level, vibration, etc. <i>During construction</i>, some of the potential impacts to be addressed include the contamination of soil, air and water (of the river and tributaries) due to excavations, cement and crushing plants, spoil areas (from tunnel), camps. The river and land ecosystems (including water and air quality) will be affected by road construction, excavations, slope conformation, sedimentation and contamination from waters coming from the tunnel (waste waters), spoil area, camps, cement plants, crushing areas and air emissions. <i>During operation</i>, potential risks to be considered for the project include: sedimentation (during maintenance activities) but also sediment starvation in the downstream reaches of the river, erosion of river banks and sand banks (important for aquatic birds and mammals), invasion of exotic species in the river and reservoir, increased public health risks due to water-borne diseases associated with the reservoir and other river reaches due to reduced flow; use of chemicals to control invasive species or perform vegetation clearance, disinfection, prevention of water borne diseases, among others to be described in the final ESIA/ESMP.</p> <p>Instruments. The Final ESIA prepared by the GoM with support from IFC and prior to appraisal will evaluate the impacts associated with pollution issues and resources efficiency. Appropriate measures to prevent, minimize, mitigate, manage and monitor resource efficiency, pollution and emissions during all phases of project development will be included in the Final ESIA/ESMP. The project company will develop environmental management project-specific plans to ensure resource conservation and efficiency of resources; pollution</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
prevention and control; waste management procedures for the construction and operation phases of the project, consistent with national regulations, requirements of PS3, World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) and international hydropower-industry practices (GIIP) to minimize or reduce adverse impacts on human health and the environment.			
PS 4: Community Health, Safety, and Security	X		
<p>Community Health and Safety. The Final ESIA will evaluate the potential impacts and risks of the project to the nearby and affected communities.</p> <p>During construction potential risks and impacts include: road accidents, contamination of water supplies, blasting effects (injures from blasted rocks; damages to houses), accidents during river crossing (including tourist boats), conflicts between communities with workers or contractors, risks to local tourists visiting the river and Majete, among others. A large influx of labor and influx of populations is expected for the project area during the construction of the MHP-RD. Therefore the risk is high for social impacts associated with the project, which might include: disease transmission and spread of HIV, potential for Gender Based Violence, Sexual Exploitation and Abuse, Child Labor and Violence Against Children.</p> <p>During operation some of the risks are: increased risk with river crossing, fires, flooding, dam safety issues (dam break), contamination of community water sources with construction materials, contamination of soils with construction debris, open pits and liabilities left after the construction, etc.</p> <p>Hazardous Materials Management and Safety. The Final ESIA/ESMP will include measures/plans to (i) reduce risks/impact during construction due to generation of hazardous waste by applying best measures to avoid burning of wastes, (ii) avoid exposure of wildlife to hazardous and contaminated waste, (iii) store and transport hazardous materials (fuel and oil, and for blasting), (iv) reduce in ground and underground confined works (tunnel), (v) reduce noise and vibration (for fauna and people) and (vi) reduce contamination of soil, air, and river ecosystems in order to avoid accidents, fires, spills and explosions. A specific protocol will be prepared to describe acceptable methods for contractors for blasting operations, for the use of explosives, and for the transport of blasted material, among others.</p> <p>Security Personnel. The Final ESIA will consider measures to comply with the PS4 and ensure that those selected by the project to provide security are not implicated in past abuses, will receive training, and will apply agreed protocols to maintain appropriate conduct toward workers and Affected Communities; and adhere to national regulations. Issues pertaining to management of security personnel will also be appropriately specified in line with PS4 and other World Bank requirements. The ESIA/ESMP will describe a grievance mechanism for Affected Communities to express concerns about the security arrangements and acts of security personnel.</p> <p>Instruments. The ESIA/ESMP that will be prepared by the GoM with the support of IFC, will describe the required contents for Community Health and Safety Plan (including HIV Social Mitigation Measures) and a Labor Influx Management Plan (Including Workers Camp Management Plan, Health Workers Management Plan, Codes of Conduct, HIV Sensitization/Measures). The Health Management Plan will address matters regarding the health and well-being of construction workers, (ensuring medication attention and insurance coverage in case of accidents), project staff and nearby communities; a Transport/Road Safety/Logistic Management Plan with measures to ensure safety of road users; an Emergency Preparedness Plan that includes procedures to respond to accidental</p>			



Performance Standards (<i>please explain why</i>)	Yes	No	TBD
leaks, spills, emissions, fires, and other unforeseen impacts (including natural disaster events such as landslides, unstable terrain, seismic activities, floods). The Safety and Emergency Response Plans will also include procedures to respond to accidental leaks, spills, emissions, fires, and other unforeseen events. During implementation, all the detailed plans described above to comply with PS4 will be implemented by the Project Company and its contractors that will build and operate the project.			
Infrastructure and Equipment Design and Safety. As per the agreement with the government, a panel of experts (POE) will be formed following the requirements of the OP 4.37 World Bank Safeguards Policies to adopt and implement dam safety measures and plans for the design, bid tendering, construction, operation, and maintenance of the two dams and associated works. The Final ESIA/ESMP will address infrastructure and dam safety risks and describe the expected content for Dam safety plans to be prepared including: i) Construction Supervision and Quality Assurance Plan, ii) Instrumentation Plan (for preventing Dam Breakage and Structural Integrity), iii) Operation and Maintenance Plan, iv) Emergency Preparedness Plan (EPP); and v) training and capacity building plan, among other actions as appropriate.			
PS 5: Land Acquisition and Involuntary Resettlement		X	
The PS5 is not applicable to the project because the OP 4.12 will be applied.			
PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	X		
<p>Malawi is a country rich in biodiversity, endemic species and unique aquatic and terrestrial ecosystems. The MHP-RD influence area includes areas with natural habitats (woodlands and forested areas) for important wildlife and aquatic species and critical habitats of endangered species that are declared as protected areas (Majete Wildlife Reserve, Elephant Marsh Ramsar site).</p> <p>During the preparation stage of this project, the Preliminary EIA and supplemental studies (including preliminary biodiversity assessment, critical habitats assessment, ecological flow analysis) and screening of the project area with IBAT, identified important risks with the proposed original peaking operations scheme of the MHP. The peaking operations would be affecting biodiversity and critical habitats of endangered species and other categories as described in PS6. Some of these species preliminarily reported in the project area include for example:</p> <p>Critically Endangered species, including: i) fish: <i>Labeo mesops</i> (ntchila; also a migratory species), <i>Serranochromis robustus</i> (yellow-belly bream), <i>Oreochromis karongae</i> (chambo), <i>Oreochromis squamipinnis</i> (chambo), and <i>Bagrus meridionalis</i> (kampango); ii) mammals: <i>Diceros bicornis</i> (black rhinoceros); and iii) birds: <i>Gyps africanus</i> (white-backed vulture), <i>Necrosyrtes monachus</i> (hooded vulture), and <i>Trigonoceps occipitalis</i> (white-headed vulture).</p> <p>Endangered species such as the birds: <i>Aquila nipalensis</i> (steppe eagle), <i>Acrocephalus griseldis</i> (Basra reed-warbler), <i>Geokichla guttata</i> (spotted ground-thrush) and reptiles (<i>Cycloderma frenatum</i>). The area is also the habitat of species of stakeholder concern and global conservation interest such as: <i>Hippopotamus amphibius</i> (hippopotamus), <i>Balearica regulorum</i> (grey Crowned-crane) and <i>Smutsia temminckii</i> (Temminck's pangolin), among other important vulnerable, migratory, endemic species preliminarily found in the project's influence areas.</p> <p>As a result of these preliminary biodiversity and critical habitat assessments, the project design has been adapted</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p>to include a second dam (regulating dam) downstream of the main dam to retain the peaking flow of the main dam. The regulating dam is expected to reduce downstream impacts to the river ecosystems and critical habitats along the Majete Wildlife Reserve and the Elephant Marsh. Further analysis in the ESIA/ESMP and BAP will clarify the biodiversity present in the river (upstream and downstream reaches and in the rest of the project area), presence of species that classifies it as a critical habitat, as well as risks and impacts on these species.</p> <p>Potential impacts. During construction, <i>terrestrial ecosystems</i> (including riparian forests) will be affected by direct impacts due to the loss of natural vegetation in areas to be cleared or converted i.e. in spoil areas, camps sites, roads; flooded areas (coffer dam), among others. Local wildlife will be affected not only by habitat loss but also by disturbance and displacement (for example due to blasting, access roads, construction of camp sites, etc.). Flora and fauna might be more exposed also to hunting and poaching due to the large numbers of workers that will work in the area. <i>Aquatic ecosystems</i> will be affected by the construction of the coffer and permanent dams, intakes and spillway, diversion river flows, blasting, sedimentation, contamination from point sources (crushing plants, tunnels, camps, spoil areas, etc.).</p> <p>During operation, terrestrial ecosystems (and habitats) will be submerged by the reservoir (about 19 km²) and regulating pond. In addition, birds and other species will be affected by the transmission lines due to collision or electrocution. Aquatic (lotic) ecosystems of about 30 km of river and tributaries channels of the Middle Shire river will be lost due to the main reservoir, other river reaches between the two dams will be affected by significant daily changes in the natural flow regime (regulating pond). The operation of the project will also cause increasing bank erosion and siltation, fish stranding, loss of connectivity and normal distribution of aquatic species including some species that have been identified as endangered, critically endangered, vulnerable, and migratory in the project area (see above).</p> <p>In the Final ESIA/ESMP, the project company will consider all the above risks and potential impacts of the two dams' cascade operational proposed scheme and it will consider all direct, indirect cumulative and residual project-related impacts on biodiversity and ecosystem services (upstream and downstream of the project areas). The final ESIA/ESMP will also consider relevant threats to biodiversity, complete the natural and critical habitats assessment (including the project areas in the Middle Shire river and near protected areas, KBA, IBAS), ecosystem services, flora and fauna and habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological and sediment transport changes, nutrient loading, and pollution. It will also consider the differing values attached to biodiversity and ecosystem services by affected communities and other stakeholders. Some local communities depend on different fish species for their livelihoods.</p> <p>The Final ESIA/ESMP will review environmental flow assessment done (by the GoM with support from IFC) during preparation and assess the current design of the MHP-RD that includes a second dam (regulating dam) and it will identify risks, impacts, benefits and additional mitigation measures as necessary. The ESIA/ESMP will assess if Sustainable Management of Living Natural Resources is expected in the project. A cumulative impact assessment and proposed mitigation plan will also be prepared to ensure effective compliance with the Standard requirements. Also, a supply chain protocol will be prepared to verify practices adopted as part of the Project's ESMS to evaluate primary suppliers. The ESIA/ESMP will define a detailed monitoring plan with agreed metrics and indicators to demonstrate compliance with PS6.</p> <p>A Biodiversity Conservation Management Plan and a Restoration Plan (BAP) will be prepared to reduce, mitigate and/or compensate the loss, degradation and impacts on biodiversity (including terrestrial, aquatic and wildlife in</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
<p>the project areas such as reservoir, upstream and downstream from dams, transmission lines, among others) and guarantee the continuation of ecosystem services for local communities. Since in the preliminary ESIA and other studies field surveys have not been performed for mapping modified, natural, and critical habitats, the Final BAP will perform field surveys and mapping to clarify the extension of these habitats as per PS6. The BAP will have a river basin approach taking into account the connectivity of the project areas with the upstream (lake Malawi) and downstream areas (e.g. critical habitats, floodplains, etc.), and direct, indirect and cumulative impacts. For the identified natural and critical habitats, the project will follow the PS6 requirements and it will design, implement and monitor the mitigation/compensation measures following the mitigation hierarchy (including biodiversity offsets): i) for natural habitats, the project will implement measures to achieve no net loss and avoid impacts through the identification and protection of set-asides; or other actions; ii) for critical habitats, the project will implement measures to achieve Net Gain and avoid net reduction of global and/or national critically Endangered or Endangered species. The BAP will also consider the cumulative impacts connected to dams found upstream and downstream of the project areas and proposed mitigation and compensation measures. The BAP will also include a biodiversity monitoring and evaluation program with clear metrics to guide implementation of the BAP, institutional arrangements and budgets.</p> <p>Consultations will be done as required in PS6 to consider the views of different stakeholders (e.g. national environmental agencies, Majete Wildlife Reserve), including affected communities, with respect to the extent of conversion and degradation of natural or critical habitats. Consultations will also include international and local experts in biodiversity to provide expert input into the development of the project and its BAP.</p>			
PS 7: Indigenous Peoples		X	
This policy is not applicable in Malawi because there are no groups that meet the definition of Indigenous Peoples.			
PS 8: Cultural Heritage	X		
<p>The proposed project is located in an area with landscape elements of cultural and aesthetic value. The civil works will include excavations/quarrying/blasting and impounding of land. These types of activities pose the possibility of encountering both known and unknown physical and cultural resources. Also, graves can be found in unknown areas.</p> <p>During the Preliminary ESIA, consulted communities around the proposed Mpatamanga hydropower project area did not inform/claim the presence of areas of cultural heritage, objects or sites that they regard as holding historical/cultural values that might require preservation/conservation. However, the proposed main dam of the MHP-RD will be built on the geographically well-known Mpatamanga gorge which has historical connotations attached to early explorers in Malawi. Government authorities consulted in the preliminary ESIA have indicated that the area does not have any legal impediment for the development of the project. In the Final ESIA, this will be confirmed and potential compensation measures will be discussed.</p> <p>The Final ESIA/ESMP will collect baseline information to assess whether any of the project activities will be located in areas with cultural or architectural significance (tangible features). A PCRs inventory and assessment will be undertaken as part of the project ESIA/ESMPs in consultation with affected communities and the relevant national regulatory agencies. UNESCO will be also consulted to ensure that there is no potential impact to the designation of nearby World Heritage Sites.</p> <p>The treatment of PCR, during construction, including archaeological relics, fossils, human graves, shrines, sacred</p>			



Performance Standards <i>(please explain why)</i>	Yes	No	TBD
trees, rocks or groves that may be encountered will follow the Chance Finds Procedure elaborated in the ESIA/ESMP. In addition, tender documents and contracts will include mandatory clauses and requirements for cultural/archeological heritage plan and chance finds procedure based on the measures defined in the ESMP.			

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	<p>The Project has been classified based on OP 4.01. When IDA public support is used (for example in the construction of the Transmission lines), compliance with this policy will be required. A panel of experts consisting of environmental and social experts has been agreed with the government to be formed before appraisal to provide guidance on the environmental and social management of impacts during the project’s development.</p> <p>Large physical civil works will be undertaken that will have environmental and social impacts including construction related health and safety concerns; labor influx and influx of populations and the social risks associated with that influx such as transmission of diseases, and spread of HIV, and potential for Gender Based Violence, Sexual Exploitation and Abuse, Child Labor and Violence Against Children; and land acquisition leading to temporary or permanent physical displacement, including loss of assets, land and livelihoods.</p> <p>Clearing, site preparation and construction will lead to loss of vegetation and associated fauna, soil disturbance and erosion, increased runoff and sedimentation of water bodies. The Final ESIA/ESMP prepared prior to appraisal will include specific measures, protocols and technical specifications to be included in tender documents (works contracts and contractors’ ESMPs) on the specific plans (waste management, revegetation, communication, emergency response, labor influx, camp management, community and occupational health and safety management, cultural/archeological/heritage chance finds procedures).</p> <p>The ESIA will define protocols for acquisition, operation and management of auxiliary facilities (workers’ Camps, Equipment storage yard/s, quarries, waste management areas, borrow areas, etc). The final ESIA/ESMP will refer to acceptable procedures on EHS described in the WBG Environmental, Health, and Safety Guidelines: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_ext_ernal_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines</p>



The Final ESIA/ESMP will also include the detailed institutional arrangements for environmental, health and safety supervision, reporting and monitoring processes, a capacity building strategy, results of the consultation process and the required budget for the implementation of all agreed plans to prevent and mitigate impacts. The Final ESIA/ESMPs will describe the required management plans and measures the Strategic Sponsor and its contractors will apply in the operation stage in order to manage the project according to the agreed Performance Standards and Safeguards Policies.

The final ESIA/ESMP will also include a Stakeholder Engagement plan, scaled to the project risks and impacts. It will be prepared prior to appraisal for the effective engagement of project affected persons, communities and stakeholders including those identified as disadvantaged or vulnerable. A project GRM scaled to the risks and adverse impacts of the project will be operationalized to receive feedback and queries and address complaints and concerns by affected or interested stakeholders. An internal GRM for workers will be prepared to ensure efficient conflict resolutions that can occur with the workers in the construction sites and camps.

Performance Standards for Private Sector Activities OP/BP 4.03	Yes	Private investments will be part of the operation and thus the following IFC Performance Standards will be applied in the project: PS 1: Assessment and Management of Environmental and Social Risks and Impacts PS 2: Labor and Working Conditions PS 3: Resource Efficiency and Pollution Prevention PS 4: Community Health, Safety, and Security PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources PS 8: Cultural Heritage
Natural Habitats OP/BP 4.04	No	PS6 will be applied in the project to prevent, mitigate and compensate impacts in modified, natural and critical habitats, as required in PS6.
Forests OP/BP 4.36	No	PS6 will be applied to make sure avoidance, mitigation and compensation measures are taken to reduce impacts on forest land, including those in modified, natural and critical habitats.
Pest Management OP 4.09	No	PS3 will be applied to ensure proposer management of pollutants in the project area, including in those areas where the Local Likelihoods Restoration Plans (which can include agricultural compensation activities) will be implemented.
Physical Cultural Resources OP/BP 4.11	No	PS8 will be applied to ensure protection of cultural resources in the project area.



Indigenous Peoples OP/BP 4.10	No	<p>This policy is not applicable as there are no groups that meet the criteria for OP 4.10 in Malawi.</p> <p>The operation will entail land acquisition and displacement (both economic and physical) in the areas adjacent to the two dams, reservoirs, power plants as well as within the 55m alignment corridor of the transmission lines from the project. Though the introduction of a Regulating Dam into the project design will ensure that there is no downstream displacement, some possible economic loss may be anticipated for livelihoods such as fishing in the downstream areas.</p> <p>Construction and associated civil works in the implementation stage will affect land, assets, and livelihoods. Work is still underway to identify the total number of PAPs. There is also the possibility of displacement from the need for auxiliary facilities (workers' Camps, equipment storage yard/s, quarries, waste management areas, borrow areas, access roads, etc.). Work is still underway to identify the total number of PAPs affected by the entire operation.</p> <p>Potentially the project will affect small-scale subsistence farmers practicing some form of agriculture and small stock keeping as well as charcoal burning in the vicinity of the powerplant, dams and reservoirs as well as within the 55m alignment corridor of the transmission lines. There are about 800 pupils in an adjacent school as well as farm workers in the 4 private estates above the dam in the reservoir area that may be both physically and economically displaced.</p> <p>The area has high poverty levels and the initial studies show that a majority of potential PAPs rely on a predominantly subsistence smallholder farming system heavily dependent on rainfall and vulnerable to unreliable weather. This situation necessitates targeted livelihoods restoration measures to provide for the livelihoods of PAPs as well as a Community Benefits Plan that could support the construction of much needed social infrastructure such as a health center, school and water supply system for the affected communities. Additionally, the availability of replacement land will need to be fully clarified during the preparation of the full RAP. A preliminary RAP for the HPP was prepared as part of the feasibility studies in accordance with the laws of Malawi and the WB safeguards policies. However, this did not meet the requirements for appraisal and will be revised and updated into a full RAP with extensive stakeholder consultations and a comprehensive livelihood restoration program/plan.</p> <p>An RPF for the transmission lines will also be prepared. These will</p>
Involuntary Resettlement OP/BP 4.12	Yes	<p>Potentially the project will affect small-scale subsistence farmers practicing some form of agriculture and small stock keeping as well as charcoal burning in the vicinity of the powerplant, dams and reservoirs as well as within the 55m alignment corridor of the transmission lines. There are about 800 pupils in an adjacent school as well as farm workers in the 4 private estates above the dam in the reservoir area that may be both physically and economically displaced.</p> <p>The area has high poverty levels and the initial studies show that a majority of potential PAPs rely on a predominantly subsistence smallholder farming system heavily dependent on rainfall and vulnerable to unreliable weather. This situation necessitates targeted livelihoods restoration measures to provide for the livelihoods of PAPs as well as a Community Benefits Plan that could support the construction of much needed social infrastructure such as a health center, school and water supply system for the affected communities. Additionally, the availability of replacement land will need to be fully clarified during the preparation of the full RAP. A preliminary RAP for the HPP was prepared as part of the feasibility studies in accordance with the laws of Malawi and the WB safeguards policies. However, this did not meet the requirements for appraisal and will be revised and updated into a full RAP with extensive stakeholder consultations and a comprehensive livelihood restoration program/plan.</p> <p>An RPF for the transmission lines will also be prepared. These will</p>



need to be reviewed by the Bank, regulatory agencies and once approved disclosed in country and in the Banks’s external website prior to Project Appraisal.

Safety of Dams OP/BP 4.37 Yes

The policy is applicable to this operation as it involves the building of two large dams. The proposed main dam (MD) is envisioned as a rockfill dam, approximately 45 m high with the crest elevation at 280 masl and power plant of up to 309 MW (additional scenarios for plant capacity are being considered). Dam crest elevation and the reservoir operating levels are limited by the tailwater level at the upstream HPP Tedzani. The reservoir, as presently designed, will have the total volume of 241 million m³ and have an active storage of approximately 85 million m³.

The second dam: a regulating dam (RD) is proposed to be located 6 km downstream of the main dam. The dam is preliminarily designed with a Full Supply Level of 210 masl and active storage of 6.8 million m³ designed to balance the two daily peaks. The dam is classified as a large dam being higher than 15 m.

Under OP 4.37, for large dams, the Borrower will appoint an independent Panel of Experts on Dam Safety acceptable to the Bank to advise on dam safety and other critical aspects of dam and surrounding areas, including review of technical design and the quality of the construction works. The GoM shall arrange periodic PoE meetings covering identification, design, construction, initial filling, start of operations. The Dam Safety Panel of Experts will be in place prior to appraisal.

Projects on International Waterways OP/BP 7.50 Yes

As per OP 7.50, the Shire River is an international waterway (a tributary of the Zambezi River). Accordingly, a standard legal notification needs to be provided to the other Zambezi Basin riparian states during preparation.

Projects in Disputed Areas OP/BP 7.60 No

This policy is not applicable to this operation.

E. Safeguard Preparation Plan

Tentative target date for preparing the Appraisal Stage PID/ISDS

November, 2020

Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing should be specified in the Appraisal Stage PID/ISDS

The GoM with support from IFC and the Strategic Sponsor will be responsible for all assessments, plans and



environmental and social instruments, to be completed prior to appraisal, as follows:

- Final Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), and Environmental and Social Management System (ESMS): for the two dams, reservoirs, power plants, and all ancillary facilities (access roads, workers' camp, quarries, and borrow pits, etc.). The ESIA and ESMP will be reinforced by the findings and recommendations of the following additional assessments: i) Environmental Flows Assessment (EFA), ii) biodiversity assessment and action plan, iii) Critical Habitat Assessment (CHA), iv) downstream impacts assessment, v) Cumulative Impacts Assessment (CIA); and others as needed.
- A Resettlement Action Plan (RAP) covering the main dam, the regulating dam, the two reservoirs, the two power plants, and all ancillary facilities (access roads, workers' camp, quarries, and borrow pits etc.) within which there will be a comprehensive Livelihood Restoration Program/Plan, including upstream and downstream areas of the dams (though the introduction of a Regulating Dam into the project design will ensure that there is no downstream displacement, some possible economic loss may be anticipated for livelihoods such as fishing in the downstream areas).
- A Stakeholder Engagement Plan (SEP) describing the protocols and plan to ensure public engagement, consultation, and participation in project development.
- Labor Management Plan and Occupational Health and Safety Management Plan describing the procedures for hiring, managing health and safety, and other requirements as per PS2.
- Dam Safety Plans for the Mpatamanga dam, and Regulating dam including an Emergency Preparedness Plan (EPP) and other instruments as required by the OP 4.37.
- Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) for the transmission line to Phombeya,
- RPF for the main transmission line to Phombeya and the transmission lines from the main dam to the powerhouse of the RD, and from the RD to the 132 kV Tedzani-Kapichira transmission line.

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