



Appraisal Environmental and Social Review Summary

Appraisal Stage

(ESRS Appraisal Stage)

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BASIC INFORMATION

A. Basic Project Data

Country	Region	Project ID	Parent Project ID (if any)
Malawi	Eastern and Southern Africa	P178914	
Project Name	Emergency Power Restoration Project		
Practice Area (Lead)	Financing Instrument	Estimated Appraisal Date	Estimated Board Date
Energy & Extractives	Investment Project Financing	5/9/2022	6/17/2022
Borrower(s)	Implementing Agency(ies)		
Ministry of Finance and Economic Affairs, Government of Malawi	Electricity Supply Corporation of Malawi, Ltd., Electricity Generation Company (Malawi) Ltd.		

Proposed Development Objective

To rehabilitate and increase resilience of the Kapichira hydropower dam and spillways, and transmission and distribution infrastructure damaged by Tropical Storm Ana.

Financing (in USD Million)	Amount
Total Project Cost	60.00

B. Is the project being prepared in a Situation of Urgent Need of Assistance or Capacity Constraints, as per Bank IPF Policy, para. 12?

Yes

C. Summary Description of Proposed Project [including overview of Country, Sectoral & Institutional Contexts and Relationship to CPF]

Despite ambitions to improve and grow Malawi’s power sector, the sector continues to be vulnerable to climate change. On January 24, 2022, Tropical Storm (TS), named Ana, made landfall in southern Malawi. Due to the storm’s landfall, heavy rains exceeding 150mm (upto 300 mm in some areas) in a day and very strong winds exceeding 80km/hour were prevalent in areas over southern Malawi, causing flash flooding that affected both people, property and infrastructure. On January 26, 2022, all districts affected by the floods caused by Tropical Storm Ana were declared Disaster Areas. As of early March 2022, Tropical Storm Ana had caused 46 fatalities and affected 995,072



people and over 221,000 households with over 190,429 people (over 32,000 households) displaced . The electricity sector was one of the worst hit sectors with damage to the 129 MW Kapichira Hydroelectric Power Plant rendering the plant out of commission. The transmission and distribution infrastructure in Southern Malawi was similarly affected with 14 transmission lines and several distribution lines requiring immediate restoration through emergency repairs. Damage was also incurred at the intake and part of the canal for the Shire Valley Transformation Project (SVTP) financed by IDA (P158805), located at the right embankment of the Kapichira reservoir, just before the fuse plug that was extensively damaged by the flood waters.

In response to the Government’s request for support to the energy sector, IDA CRW funds in the amount US\$ 60 million are being mobilized to restore damaged electricity transmission and distribution infrastructure and damaged electricity generation infrastructure, based on detailed needs assessments carried out in the field in conjunction with the Electricity Supply Corporation of Malawi Limited - ESCOM and Electricity Generation Company (Malawi) Limited - EGENCO, the owners of the damaged assets.

The project has two main components as follows:

Component 1: Kapichira Hydropower Dam Rehabilitation and Strengthening (\$44.7 million, led by EGENCO). This component will finance the return to resilient operation of the 128 MW Kapichira hydropower plant through the rehabilitation and upgrade of Kapichira dam and spillways. The following phased approach is proposed to be implemented for the protection, rehabilitation and strengthening of Kapichira dam:

The following phased approach is proposed to be implemented for protection and rehabilitation of Kapichira:

- Immediate actions mobilized by EGENCO for primarily and urgently restoring main spillway capacity while also kick-starting actions on the critical path for Kapichira dam rehabilitation such as collecting topographic data and assessing the quality of sand available in the reservoir for construction commencing sediment management studies, and removal of sediment from the reservoir.
- Phase 1: Energy restoration to be implemented through raising water levels back to operational levels and by developing a temporary coffer dam upstream of the damaged infrastructure (the fuse plug and 200 m damaged section of the embankment dam) in order to restore impoundment of the reservoir. This would prevent further damage while protecting works for Phase 2 and SVTP irrigation intake. Although the dam designs have not been developed, it is proposed to revise the designs of the irrigation intake to be incorporated in the dam wall. This phase would be supported by funding resources available under the SVTP project.
- Phase 2: Build-back better: Based on a revised design that would integrate key technical and operational features that contributed to the failure, this phase would aim at (i) rehabilitating damaged infrastructure, (ii) upgrading the Kapichira power plant to enhance the resilience of the hydropower scheme, and (iii) supporting companion actions on O&M and importantly sediment management. Surface area of the reservoir should not be affected by the revised design. Flow regimes should also not be affected (or very little). In case some sediment flushing is planned/recommended, the ESIA and sediment management strategy will make sure that adequate management of flows is proposed together with mitigation measures. This phase would be funded under the new WB emergency operation.

Component 2: Transmission and Distribution Network Restoration (\$15.3 million, led by ESCOM). The damage caused by the tropical storm has been in various degrees including complete line sections, isolated structures and damage to specific equipment and materials in a manner that permanent rehabilitation works shall have to be undertaken



comprising of complete line construction works, replacement of structures, and of specific equipment and materials. ESCOM's infrastructure affected by Tropical Storm Ana include both transmission (132kV & 66kV) and distribution (33kV, 11kV and 400V lines) networks where a number of power line components have been affected. These include steel towers, wooden poles and structures, transformers, conductors and insulators among others. The damage caused by the tropical storm has been in various degrees including complete line sections, isolated structures and damage to specific equipment and materials in a manner that permanent rehabilitation works shall have to comprise of complete line construction works, replacement of structures, and replacement of specific equipment and materials.

D. Environmental and Social Overview

D.1. Detailed project location(s) and salient physical characteristics relevant to the E&S assessment [geographic, environmental, social]

The region, and project area, is vulnerable to natural disasters especially flooding (and drought). Cyclone Bansi and Tropical Storm Chedza in 2015, Hurricane Ida in 2019 and now Tropical Storm Ana 2022 have each caused devastating floods and State of Disaster Emergencies. Over 24 and 25 January 2022, Tropical Storm Ana caused significant flooding in the southern region of Malawi. The flooding resulted in the overtopping of the Kapichira dam and training dike at Kapichira Hydropower Plant (HPP) located in the middle Shire River, resulting in the 160m long fuse-plug failing, damage to 180m section of remaining rock-fill earth dam, the SVTP intake and 380m of the training dike being washed away amongst other damage to the spill-gates of the HPP, rendering the 130MW HPP offline, (30% of National grid). Furthermore, the floods caused damage to several distribution and transmission line networks and equipment. The project aims to restore the damaged electricity generation infrastructure (Component 1), and the damaged electricity transmission and distribution infrastructure (Component 2).

Component 1

The Kapichira Hydroelectric Power Scheme, located some 70km south-west of the commercial city of Blantyre, is the lower most HPP in the Shire River cascade group of hydroelectric power plants. Phase 1 of two 32.4MW turbines was commissioned in mid-2000 as part of the Malawi Power V Project and upgraded through Phase 2 in 2013 of another two turbines. The scheme has a total developed capacity of 129.6 MW from four 32MW units.

The area where the project will be implemented is in the middle Shire Valley of the Southern region of Malawi, specifically Chikwawa district, and is considered one of the poorest areas in the country. The 2018 census puts the population of Chikwawa at 564,684 with poverty rates around 55 percent as per the 2018 IHS. The average household size in the area is 4.4 persons, which is slightly lower than the national average.

Approximately 16km downstream of Kapichira, on the Shire River, is the Elephant Marsh, which is a biodiversity hotspot and has been designated as a Ramsar wetland site. The area of the Marsh is difficult to define due to the varying wet season year to year; the marsh varies approximately 400km² to 1200km², the northern tip of the marsh is approximately 16km downstream from Kapichira HPP. According to its Ramsar status, the Marsh plays an important role in maintaining the valley's hydrological regime, through flood control, water storage and supply of nutrient-rich sediment. The combination of the different habitat types within the Marsh, and the changes in these over the course of the flood cycle, give rise to the overall productivity of the Site and its importance for the conservation of resident and migratory species. The Site supports over 20 000 waterbirds, including breeding sites for various IUCN listed threatened bird species. It was also recently established as Malawi's first Community Conservation



Area for the rich biodiversity that it supports and its importance to local communities and their livelihoods. The extent of marsh vegetation in Elephant marsh varies according to water levels in the Shire and Ruo Rivers and is also influenced by sediment deposition; large parts of the marsh have been encroached by subsistence farming.

On the western bank of the project site, the nationally important conservation area Majete Wildlife Reserve (MWR) is located. Extreme care will need to be taken when accessing the MWR to avoid unnecessary disturbance to regular operations. However, it should be noted that SVTP has been actively operating on the western bank over the past 2 years during the construction of the intake. A section of the Reserve has been fenced off around the SVTP works to prevent encroachment and illegal access into the Reserve. The upper catchments of the river basin are prone to land degradation and rapid land use transformation resulting in extensive erosion resulting in high sediment loads washing down the river system. Coupled with the flushing from upstream HPPs in the cascade, Kapichira is currently the recipient of a significant volume of sediment, and as the last HPP in the cascade is directly responsible for the discharge or removal of sediments into the Chikwawa floodplain and Elephant Marsh wetland.

Under Component 1 led by EGENCO: Kapichira Hydropower Dam Rehabilitation and Upgrade. Activities will take place within the immediate area of the Kapichira Reservoir. The main project activities are located within the existing disturbed footprint of the HPP and reservoir. The civil works will be conducted on both the west and eastern bank of the river. There may be ancillary new sites developed for support activities including quarry for construction materials, new sediment storage dams, and associated access roads and labor camps. Sediment yield from upstream and its sustainable management, its impact on the operation of the HPP, and its impact downstream should be a key issue to be addressed to improve the robustness and build resilience to climate events on the infrastructure.

Under Component 2 led by ESCOM: Transmission and Distribution Network Restoration. Activities relating to the distribution and transmission networks will have limited impact where they are re-instated along the existing previous routes of the now damaged transmission lines. However, the civil works are expected to be conducted near rural villages composed of vulnerable communities and high unemployment.

From the social perspective, the project expects to prepare a Resettlement Policy Framework (RPF) to guide in the acquisition of land, restriction of land use and any involuntary resettlement, and loss of other assets. The project will be working within existing wayleaves and infrastructure footprint. However, construction works will require either the temporary or permanent loss of assets. The project will be implemented in various communities across all regions therefore an intensive and inclusive stakeholder consultative process will need to be undertaken before and during the implementation of the project. Similarly, construction works will be undertaken at various locations therefore the mitigation measures under ESS2 will need to be stringently followed and enforced with the robust GRM in place. The institutional capacities of the two utility companies (ESCOM and EGENCO) will be enhanced in order to successfully implement the project, with the setting up of PIUs with qualified and experienced safeguards specialists in place.

D. 2. Borrower's Institutional Capacity

The Project will be implemented by two institutions, EGENCO (Component 1) and ESCOM (Component 2). ESCOM has considerable experience in implementing large capital investment projects in transmission and distribution system expansion and upgrade financed by the World Bank and other development partners. However, the capacity of the utility company is over stretched. Further, experience with ESCOM from ongoing energy projects has seen delays in recruitment of key safeguards specialists, inadequate budget allocation for PIU activities has impacted on project delivery and proper monitoring on safeguard issues. EGENCO, on the other hand, does not have any experience in



preparing and implementing World Bank funded projects, hence considerable support would be required for both entities to enable the project teams to successfully manage activities under the Project. Therefore, both utilities will need to address capacity challenges by setting up dedicated PIUs and ensure the timely hiring of experienced key safeguards specialists. The Bank will appoint specialists to assist the PIUs in the detailed preparation of Safeguard instruments. Both PIUs will recruit dedicated environmental safeguard specialist, social safeguard specialist, Gender specialist, and occupational and health and safety safeguard specialist. The specialists are expected to have experience in natural disaster management and emergency response. A Short Term Consultant Sediment Specialist will be appointed by the Bank to support EGENCO to develop Emergency Sediment Management Plan and the sediment assessment to inform the updated O&M Operating rules for the rehabilitated dam.

The two PIUs will report to a Project Steering Committee (PSC) comprising senior staff from the Ministry of Energy, Ministry of Finance, EGENCO, and ESCOM. The two PIUs will report to the PSC which meets on a monthly basis. The PSC will provide oversight, and high-level coordination and meet to address any issues that need to be resolved including facilitating any authorizations or approvals required for project implementation, and evaluating the overall progress of the project. Third Party monitoring is recommended for project execution.

II. SUMMARY OF ENVIRONMENTAL AND SOCIAL (ES) RISKS AND IMPACTS

A. Environmental and Social Risk Classification (ESRC)

High

Environmental Risk Rating

High

The environmental risk rating is considered High. The scale and scope of impact of the current situation affects the whole country of Malawi across all sectors. The damage to the Kapichira dam has rendered the HPP offline and loss of 30% of national electricity generation capacity, resulting in extensive periods of blackouts. A heavy reliance on diesel for backup generators and alternative national power supply has driven up the price of diesel in supply and demand competition, pushing up the prices of food, transport and of living costs. The increased cost of living has seen increased protests and social unrest. The lack of electricity has significant economic impacts and severely affects business, the cost of doing business, thereby impacting on employment. Although the dam can be repaired and the HPP brought back online, this should be done with the aim of building back resilient to future climate events and disaster shocks, and the sustainability of the dam and HPP. Sediment management is a significant contributing cause to the failure of Kapichira dam, and in the absence of adequately managing the sediment, there is likely to be similar failure of the dam or HPP in a short period of time. Furthermore, in the absence of sustainably monitoring and managing the sediment regime through the Shire River system will have impacts on the aggradation of the Chikwawa flood plain resulting in altered flood occurrence and displacement of people from the flood plain, negative impacts on Elephant Marsh either by too much aggradation resulting in smothering the wetland, or degradation of too little sediment resulting in the wetland eroding and the significant negative impact both of these have on altering the habitat of the biodiversity of the wetland. Major risks are associated the project activities include vulnerability to natural disaster (flooding), destabilization of slopes and riverbeds, cofferdam safety, water quality and sediment connectivity disruption, and high OHS risk related to civil works and especially near water. These investments carry the potential for significant impacts, in a context of uncertainty around the details of civil works to be supported, the sensitive health and safety aspects derived from the disaster context as well as the COVID-19 Pandemic, and the context of strained implementation capacity in a disaster setting to effectively manage environmental, health and safety risks and impacts. The environmental risk rating will be reviewed and adjusted, if necessary, as more detailed



information becomes available about the specific investments and as corresponding technical studies are completed. The major environmental risks and impacts under the project are expected to include: (i) potential disturbances to natural habitats or other sensitive landscapes (see Majete WR and Elephant marsh); (ii) nuisance related to dust generation, vibration, noise and odors; (iii) generation, management and disposal of non-hazardous and hazardous solid waste, including dredged river sediment, residual construction materials waste, and hazardous materials from demolitions; (iv) generation and discharge of wastewater from civil works; (v) temporary disruptions to local traffic during the construction phase; (vi) damage on aquatic ecosystems; (vii) health and safety risks to the project workforce and local communities; (viii) the possibility of additional disease outbreaks as well as risks of spread of the COVID-19 virus and outbreaks of malaria; (ix) direct and indirect impacts from other natural hazards (extreme heat, floods) that may occur in the affected areas; and (x) dam safety related risks.

Social Risk Rating

Substantial

The Social risk for this project is considered substantial because of the low capacity of the utility companies (ESCOM and EGENCO) implementing the project to manage social risks of World Bank funded projects. Currently, the project has no dedicated Social Safeguards Specialists to ensure that all social risks are mitigated during project preparation phase as well as managing social safeguards implementation throughout the project life. The main potential social impacts arising from the implementation of the project will include construction related health and safety risks to communities and workers; risks associated with labor management and demand for local employment; labour influx related risks including the spread of infectious and sexually transmitted diseases such as HIV, COVID 19 and other communicable diseases; exacerbation of Gender-Based Violence/Sexual Exploitation and Abuse and Sexual Harassments (GBV/SEA/SH); as well as possible disputes over land in the event that the wayleaves are substantially changed. Otherwise, loss of land and other assets are not expected under the existing wayleaves. A Resettlement Policy Framework (RPF) will be prepared due to anticipated land acquisition, restricted land use and/or involuntary resettlement, and loss of other assets in relation to the construction works. Quarry sites, sediment dams, construction and worker camps, and access roads will lead to temporary and/or permanent loss of land and other assets.

Public Disclosure

B. Environment and Social Standards (ESSs) that Apply to the Activities Being Considered

B.1. General Assessment

ESS1 Assessment and Management of Environmental and Social Risks and Impacts

Overview of the relevance of the Standard for the Project:

The project includes a variety of activities impacting aquatic, terrestrial and avi-faunal ecosystems. Although the project is repairing damage to existing structures, the actions of these repairs will have impacts on the site and surrounding environments and stakeholders. The site, surrounding, and downstream environments include sensitive biodiversity and ecosystems, as well as impacts to communities and their livelihoods, therefore the various activities will be assessed in accordance with the ESSs. An overall project Environmental and Social Impact Assessment (ESIA) for Component 1, which will reflect and account for Project activities and it will ensure compliance with the ESSs, the WBG Environmental, Health and Safety Guidelines (EHSs), and other relevant Good International Industry Practice (GIIP). The ESIA will include as annexures, a set of ESMPs including: the Waste Management Plan, Hazardous Substances Management Plan, GBV Mitigation measures, GBV/SEA/SH Action plan, Traffic Management Plan. The ESIA and ESMPs will include requirements for resource efficiency and pollution prevent and management. Additional



management plans including the archaeological assessment, biodiversity management plan, Disaster Risk Assessment and Emergency Preparedness Plan for Project Implementation, the dam safety plans (such as: (i) plan for construction supervision and quality assurance, (ii) an instrumentation plan, (iii) an operation and maintenance plan, (iv) and an emergency preparedness plan), Emergency Sediment Management Plan, Sediment Assessment for Kapichira scheme and Kapichira O&M Plan, and cultural heritage are described under the relevant ESS and will be stand-alone plans. The ESIA and the ESMPs will be developed, disclosed, consulted, reviewed and cleared by the World Bank, and to relevant Contractor's bidding processes, and thereafter implemented throughout the carrying out of activities.

The environmental and social risks and impacts of the proposed Project activities, will be assessed in accordance with the ESSs, the WBG EHSs, and other relevant Good International Industry Practice (GIIP), cleared by the World Bank prior to carrying out project activities, and/or prior to applicable Contractor's appointment processes. The instruments shall also include recommendations and mitigation measures proposed through the ESS management plans. Instruments for different sub-activities of the components to be developed/updated include (not limited to):

COMPONENT 1: EGENCO

- i. Develop a consolidated Environmental and Social Impact Assessment (ESIA) for the Project Component 1 Dam, training dike, spillway, and HPP rehabilitation activities, and corresponding Environmental and Social Management Plan (ESMP), in accordance with the ESSs, the WBG EHSs, and other relevant Good International Industry Practice (GIIP), including cumulative impacts.
 - o The Phase 1 Cofferdam will fall under the Shire Valley Transformation Project Phase 1 (SVTP-1), and the environmental and social instruments will be considered through SVTP'S updated ESMP. The cofferdam will be 13m high and operating at 146m, storage will be less than 2.3 Mm3 and it will be operational for an estimated period of 2-3 years. Safety measures for the small cofferdam will be developed under the SVTP project and reviewed by an independent panel to ensure consistency with GIIP. EGENCO will ensure collaborative due diligence during construction and operation of the cofferdam and regular management meetings will be established between EGENCO and the SVTP project.
- ii. For any new ancillary activities or new sites for existing activities related to or associated with the project activities, including new sediment deposit areas, quarry and/or borrow pit sites, new access roads, and any new labor camp sites, a detailed Environmental and Social Impact Assessment (ESIA) will be prepared. The ESIA must consider and assess alternative options for activity methods, and/or location of the activities or sites.
- iii. Update the detailed ESMP for dredging/excavation works in the Kapichira dam shall be updated, disclosed, consulted, and adopted prior to activity implementation, to reflect and account for Project activities and ensure compliance of Project activities with the ESSs, the WBG Environmental, Health and Safety Guidelines (EHSs), and other relevant Good International Industry Practice (GIIP).

COMPONENT 2: ESCOM

- iv. Develop a detailed ESMP for reconstruction of distribution and transmission lines shall be prepared, disclosed, consulted, and adopted to reflect and account for Project activities and ensure compliance of Project activities with the ESSs, the WBG Environmental, Health and Safety Guidelines (EHSs), and other relevant Good International Industry Practice (GIIP). If the proposed reconstruction works and/or associated works should deviate from the existing/previous routes, an ESIA will need to be prepared accordingly. ESMP to include Biodiversity Management Plan recommendations. ESIA and ESMP will be developed, disclosed, consulted, reviewed and cleared



by the World Bank, and to relevant Contractor's bidding processes, and thereafter implemented throughout the carrying out of activities.

Develop a Resettlement Policy Framework (RPF)/Resettlement Action Plan (RAP) and develop Labour Management Procedures.

Key social risks are related to ESS2 and ESS5. Under ESS2, the foreseen risks are related to occupational health and safety risks both under component 1 and 2 due to the nature of the construction works which will require working at great height and in/along fast moving water. In addition, community health and safety risks are anticipated due to the construction works that will be undertaken particularly under component 2 where various overhead lines (OHLs) will be rehabilitated. arising from the implementation of the project will include construction related health and safety risks to communities and workers. Risks associated with labor management are anticipated in relation to potential poor working conditions for both skilled and unskilled workers; child labour; violation of employment and workers rights; lack of equal opportunities for hiring; hostility against migrant workers from communities due to limited opportunities for community members particularly the youth. Labour influx related risks are also anticipated which including the spread of infectious and sexually transmitted diseases such as HIV, COVID 19 and other communicable diseases and potential conflicts with local communities and the negative impacts on social fabric of local communities. There is a high potential for Gender-Based Violence (GBV) due to changes in levels of income within the household; anticipated increase in incidence of Sexual Exploitation and Abuse and Sexual Harassments (SEA/SH) related to interactions between migrant workers and local community members particularly girls and women. This will be addressed in the GBV/SEA/SH action plan that will be appended to the ESMPs. Under ESS5, anticipated risks due to loss of land and other assets are related to negative impacts of incomes and livelihoods and negative impacts on social networks in the event of physical displacement.

ESS10 Stakeholder Engagement and Information Disclosure

Component 1 construction activities are located within the existing footprint and reservoir of Kapichira Hydropower plant and reservoir. However, access to the different sides of the construction site will be through local villages and Majete Wildlife Reserve, and the SVTP project site, as well as through EGENCO'S Kapichira HPP property. Under component 2, these activities will involve the re-instatement of transmission and distribution lines across the region, following the existing network routes. Stakeholder engagement will need to include the Districts, and communities adjacent to the areas of work.

The Stakeholder Engagement Plan has been prepared under this project and will be updated within two months of project effectiveness. Each utility PIU will have its own implementation plan in order to properly engage with the component relevant stakeholders. The comprehensive and updated SEP will provide a detailed roadmap on the consultation and engagement of relevant stakeholders including affected persons, communities and interested parties during project implementation. The SEP has undertaken stakeholder identification and analysis to identify the nature of the anticipated stakeholders as well as their information requirements, timing, and methods of engagement throughout the lifecycle of the project. Stakeholder engagement will need to include communities and land users adjacent to the project area including Majete Wildlife Reserve, and SVTP Irrigation Project. An platform for regular engagement with African Parks (operating Majete Wildlife Reserve), the SVTP PIU and the EGENCO PIU will be established to facilitate ongoing and transparent communication and engagement between these key stakeholders. Notification of the project will be sent to ZAMCOM (Zambezi River Basin Commission).



Stakeholder engagement activities shall include meetings with relevant traditional leaders, community representatives, political leaders, Heads of Government departments, representatives from NGOs and CBOs, the media, the project affected parties (PAPs) and other interested parties (OIPs). The purpose of these meetings shall be to refine the stakeholder engagement strategy so as to meet the requirements of PAPs and OIPs and ensure that future communication is effective and cognizant of social and cultural sensitivities.

The SEP includes a Communication Plan for each PIU, and an accessible inclusive Grievance Mechanism in accordance with ESS10. Special consideration will be made in preparation of the communication tools and materials bearing in mind that the project will be implemented in various Districts, therefore differing cultural and social norms, and language will be considered. Measures will be taken to ensure inclusive engagement with potential disadvantaged and vulnerable groups under the project such as the elderly and orphans. Other projects in the area such as SVTP 1, identified these two groups as the most vulnerable groups, while the youth were found to be marginalized since they have higher levels of unemployment.

The SEP will also inform the preparation and implementation of other safeguard instruments, such as LMP, RPF, subsequent RAPs, ESIA and ESMPs. The advance preparation and timely disclosure of the Environmental and Social safeguards instruments in prior projects will be critical in identifying areas in need of further attention or reassuring all stakeholders of the limited scope of the project's environmental and social impact.

The SEP includes a Grievance Mechanism (GM) that will be implemented in relation to project affected persons (PAPs), affected communities, project workers and the general public. The GM includes mechanisms on GBV/SEA/SH prevention and response. The SEP spells out tools that will be used in the recording and management of various grievances received from the various utility companies and the contractors under the project. A monitoring and evaluation procedure has been stipulated. It is expected that the consolidated quarterly reporting will provide a summary of grievances received, addressed, closed, and outstanding from both utility companies.

B.2. Specific Risks and Impacts

A brief description of the potential environmental and social risks and impacts relevant to the Project.

ESS2 Labor and Working Conditions

Both components of the project will include activities that will require skilled and unskilled workers that could be engaged as direct workers, primary supply workers, and contracted workers in the various project works. Under Component 1, construction works will be undertaken at Kapichira dam while under Component 2, works will be undertaken in multiple project areas across the region on the transmission and distribution lines. Both components will require the need to set up workers camps and strict management and adherence of OHS. It is expected that GBV/SEA/SH issues are more likely to emerge under Component 2 where there will be works taking place in multiple project areas withing local communities. Therefore, the ESMPs will include mitigation measures for substantial GBV risk and annexure of GBV GBV/SEA/SH Action plan to enhance GBV/SEA/SH prevention and response. A Gender Target of 20% female employment across the project, especially in STEM positions, has been included in the project indicators.



Labor influx and management procedures will need to be put in place. There is a need to develop and implement OHS procedures for various components of the works, including working in the saturated sediment (mud), working or near fast-flowing water, and work at height. Hence, a standalone Project Labor Management Procedures (LMP) will be developed prior to relevant Contractor's bidding processes. The Project LMP will provide mechanisms to prevent child and forced labor (The minimum legal age for work is 18), managing GBV/SEA/SH, gender equity and awareness raising, and COVID-19. Critically, it will include a Grievance Redress Mechanism for the workers. Workers Grievance Redress Committees will be established to address workers grievances. Grievances related to SH/SEA at the work place will undergo a separate approach that is survivor centred and ensures anonymity. The LMP will confirm that all project workers will be managed in accordance with the requirements of national law and ESS2, and the mechanism for achieving this for the construction contractors is also described in the ESMP. The standard Code of Conduct will be proposed to reflect the particular conditions of the project. The ESMP will set mitigation measures against specific threats to women to prevent and mitigate potential GBV/SEA/SH risks involving project workers, this will be included in contractor and worker contracts.

The civil works contract will include measures to ensure that labor-management measures are in place for all workers and that the health and safety of workers, taking into account associated risks in the project area and different classes of hazards in the construction areas, including physical, chemical, biological, hydrological. The civil works contracts will also describe the minimum standards to be achieved for any worker accommodation and worker transport to be provided by the contractor.

Project specific risks relating to occupational health and safety, including from activities that are particularly dangerous or will expose workers to abnormal hazards such as working on or near fast flowing water, scaffolding and working at heights will be identified in the ESIA and ESMPs, and appropriate controls will be included within the Civil Works Contracts. The Civil Works Contracts require the contractor to prepare and implement an approved Occupational Health and Safety manual (OHSM), which will describe the safe systems of work to be adopted as well as measures to be taken to minimize the spread of infectious disease, including COVID-19. Each PIU will include a dedicated Occupational Health and Safety Safeguard specialist with experience in natural disaster risk and emergency response, to work with the contractors to develop OHS plans and Standard Operating Procedures to the component activities, and conduct regular compliance audits.

Capacity building training will be required for PIU staff, and Project workers on, inter alia: (i) World Bank ESF requirements; (ii) WBG EHS Guidelines; (iii) GBV/SEA/SH, Gender awareness, and GRM (iv) Disaster Risk, Dam Safety, and emergency response procedures; (v) Hazardous material management; (vi) Waste Management; (vii) Biodiversity management; (viii) Chance finds procedures for field workers; (ix) Occupational Health and Safety training in various working environments including working in mud, scaffolding, and working at heights; and explosive management. Due to the regular occurrence of floods in the project area affecting both project components specialised training on 'Working on/adjacent fast flowing water, and swift water rescue', will be provided to key teams of staff and relevant workers under both components.

ESS3 Resource Efficiency and Pollution Prevention and Management

Continuity of sediment flows is an essential element ensuring dynamic stability of rivers and river basins. Deposition of sediment in reservoirs disturbs the continuity of sediment flows in rivers while concurrently reducing the amount



of reservoir storage available for flow regulation. Reducing net available reservoir storage reduces the reliability of water supply, power and flood control services offered by dams and reservoirs. Concurrently it disturbs the continuity of sediment flows resulting in the degradation of rivers and aquatic habitat, causing increased harm to the environment, and increasing potential impact on human life and property.

Since its construction in 2000 Kapichira reservoir has been plagued by the accumulation of sediment reducing its storage capacity and impacting the efficiency of the hydropower plant, resulting in extend periods of maintenance coupled with limited or no generation. The increasing problem of siltation in the Shire River resulted in the Kapichira Reservoir being almost completely silted up in 2003, just three years after commissioning, resulting in increased silt content of the water taken in for power generation and hence problems with the mechanical equipment in the Powerhouse. The heavy siltation of the Reservoir also caused change in flow regimes in the Reservoir and hence damage to the Main Dam, which required urgent repairs and Reservoir siltation reclamation works. At commissioning the Kapichira Reservoir had a live storage capacity (for peak load management only) of about 1.7×10^6 m³ at the minimum operating level of 144.50m and a live storage capacity of about 3.0×10^6 m³ at the maximum operating level of 147.50m. At the time of Tropical Storm Ana, the level of sediment in the Reservoir was at 147.0m above sea level, the recommended optimum operational level for optimum power generation at Kapichira during peak. This level was 0.5m below the maximum design operating level of the Reservoir of 147.5m, which was 0.5m below the Fuse Plug activation level of 148.0m. The Reservoir was silted to above 146m causing significant storage capacity reduction and resulting in the heightened water level and reduced freeboard of the dam prior to the storm. Limited floating dredging of sediment was only active during calm conditions, and occurred only around the HPP intake to maintain HPP operations.

As the largest source of electricity generation in the country, the necessary shut down of the plant to allow for sediment clearing and maintenance has often been delayed or avoided, with the subsequent detrimental accumulation of sediment significantly reducing the storage capacity of the reservoir. The breach of the fuse-plug and resultant draining of the reservoir provides an opportunity to remove as much of the accumulated sediment as possible prior to the dam becoming operational again thereby restoring the storage capacity it was originally designed for. Immediate sediment clearing for the implementation of the immediate phase of works, will require its own Emergency sediment management plan, including the temporary storage of the sediment. A detailed ESIA including impact to the Chikwawa District floodplain and displacement of persons under future floods, and impacts to the Elephant Marsh Ramsar wetland, will required should the option of flushing the sediment be considered.

An integrated sediment management strategy for the Shire River and EGENCO's HPP cascade is not available from previous studies in order to sustainably manage the sediment load reaching and accumulating in Kapichira reservoir and mitigating impacts to the downstream areas. Without a realistic assessment, monitoring and implementation of the sediment regime through the river and HPP cascade, another failure of Kapichira will be expected. Therefore, in the absence of such a strategy, to extend the life of the reservoir, and in order to inform the updated Operation & Maintenance operating rules for the rehabilitated dam, a sediment assessment for Kapichira scheme (focusing on the critical aspects of sediment management pertaining to Kapichira's operations) will be necessary to determine the volume of sediments coming into Kapichira and the volume and pattern of flushing out the dam and minimise the detrimental impact on the Chikwawa floodplain and Elephant Marsh. Additionally, a basin-wide sediment management plan will be required to be developed under Mpatamanga Phase I and SVTP 2 projects (including a comprehensive sedimentation strategy and cumulative impact assessment) and the sediment assessment for



Kapichira scheme will be updated accordingly. Prior to the breach there was already ongoing limited dredging operations, removing the silt to an excavated stockpile dam. These stockpile dams are however close to full capacity and already evidence of flowing back into the downstream reach of the Shire River. New additional storage areas for the removed sediment will require environmental and social impact assessment, including necessary environmental permits and authorizations in compliance with National legislation and regulations. EGENCO intends to use the sediment for future construction material but assessments for this are outside the scope of this project and still underway. The existing ESMP for the dredging works will be updated to include procedures for the removal of the sediment while the reservoir is empty. An ESIA will be conducted for the new sediment storage areas.

Pollution prevention and management will continue to be an important activity under the project. Waste generated through the construction camps, as well as through the construction and dredging processes will be avoided and minimized where possible, where unavoidable wastes will be separated and considered for reuse, recycling, or appropriate disposal. A Waste Management Plan for the separation, storage, handling, transport, and disposal of waste at authorized waste disposal facilities will be compiled. A Hazardous Substance Management Plan including issues related to handling, storage and transport of explosives will be compiled. Disposal of waste will, as the Shire flows into the Zambezi River in Mozambique, consider the Basal Convention on the control of transboundary movements of hazardous wastes and their disposal (BC-14/12) and in accordance with ESF requirements. Wastes streams should be avoided, and where unavoidable, reuse and recycling should be promoted, and where non-recyclable then disposed at authorized waste disposal sites. The Waste Management, and Hazardous Substances Management Plans will be included as part of the ESMPs.

Sourcing of resources including construction materials shall consider availability of the sediment itself, as well as appropriately managed offsite sources. Storage of hydrocarbons including fuels, oils, creosote for treating wooden distribution poles, and cooking fuels, etc., will be stored securely and banded to prevent spillage into the ground or aquatic areas, as well as fitted with sufficient fire-fighting equipment securely and safely located near the storage areas.

The proposed project intends to build resilience to climate risks and vulnerabilities by building back better and improving the robustness of the infrastructure. Although there will be greenhouse gas (GHG) emissions through the use of materials and machinery, the nature of the hydropower plant is a renewable energy source. Efficient use of resources includes water and energy, including cooking energy, will be promoted where appropriate.

ESS4 Community Health and Safety

The nature of the emergency was due to a climate event. The area is prone to regular climate events, and the region experiences flooding on an annual basis. Due to the high risk of repeat flooding during the project implementation and scale of impacts as a result of the flooding or further failure of the dam, a Disaster Risk Assessment must be conducted by both PIUs for their project components prior to relevant Contractor's bidding processes, and compile Emergency Preparedness Plans for such eventuality. The Emergency Preparedness plans need to be developed in engagement with Department of Disaster Management Affairs (DODMA) and the relevant District Councils. The specialists to be hired by the PIU will be required to have experience in natural risk disaster management and emergency response.



Although the project activities are predominantly located within the existing footprints of the infrastructure that was damaged, the process of implementing the project activities will have impacts on community health and safety. Under Component 1, community health and safety issues will be related to noise disturbance, movement of heavy machinery to and from the site, quarry and borrow pits, sediment disposal. The ESMP and related plans will be developed to ensure proper management of these risks such as fencing of construction sites and pits, rehabilitation of sites once construction is complete, and continuous engagement and education of community leadership and members on health and safety issues. Under Component 2, the rehabilitation of the transmission and distribution networks will impact various communities due to multiple project sites. Proper coordinated community engagement will be critical on health and safety particularly during stringing. Disturbances due to noise, dust, traffic when moving heavy equipment, impacts related to sourcing of materials will be addressed and managed in the respective ESMPs. In the long term the project will have positive impact to communities by restoring the electricity generation capacity of the hydropower dam and redeveloping the SVTP irrigation intake. Detailed ESMPs will be developed/updated under each component due to the differentiated environmental and social risks and impacts.

A traffic management plan will be developed as part of the ESMPs and included in the various ESMPs. Traffic and road safety will also consider location transport and travel routes to schools, and safety of public around construction machinery and vehicles, as well as mitigation measures for noise and dust/ emission disturbance caused by construction traffic. The traffic management plan will set out management and mitigation measures for traffic and road safety to be implemented across both components and all contractors and service providers on the project, including inter alia consideration of the road worthiness of vehicles, and competence of vehicle operators, signage, etc.

As with most construction projects in Malawi there is a substantial risk of GBV/SEA/SH. A GBV/SEA/SH action plan will be developed as a stand-alone document and recommendations included in to all ESIA and ESMP instruments.

Both components of the project will be work with hazardous substances. The development of the Hazardous Substances Management Plans has been detailed in ESS3 in regard to pollution prevent.

The key aspect of the Project is the rehabilitation of a portion of the Kapichira dam, a large dam, under Component 1. In compliance with Dam Safety requirements, a panel of experts will be established, proposed to be the same panel as SVTP, to review and advise on matters related to safety and other critical aspects of the Kapichira Dam, its appurtenant structures, catchment area, the area surrounding the reservoir, and downstream areas. As part of this process Dam Safety Plans [DSPs: (i) a plan for construction supervision and quality assurance (CSQAP); (ii) an instrumentation plan (IP); (iii) an operation and maintenance plan (O&MP); and (iv) an emergency preparedness plan (EPP)]. Safety measures for the small cofferdam will be developed under the SVTP project and reviewed by an independent panel to ensure consistency with GIIP. EGENCO will ensure collaborative due diligence during construction and operation of the cofferdam and regular management meetings will be established between EGENCO and the SVTP project. SVTP independent panel of experts (POE) includes a dam expert (head of the panel), a geotechnical expert, and a hydrological expert. The POE will carry out a safety inspection of the Kapichira dam with a frequency of not less than every 6 months and it is proposed to be adapted to the progress of studies and works as deemed required, including during impoundment of the reservoir.



Noise, dust and emissions, vibrations and blasting disturbance associated with construction works, including operating of heavy machinery, is a disturbance to both to the biota of the area, the tourism of the area, and the communities residing in the area. Mitigation measures to avoid, reduce, mitigate or offset/compensate will be developed during all ESIA and ESMP development and compliance with ESMP and Contractors-ESMP will be regularly audited. Noise disturbance should be kept to agreed timeframes with stakeholders, 7am - 5pm on week-days, 8am to 1pm on Saturdays and no noise disturbance on Sundays. Noise limits will be included in the ESMPs in accordance with the most stringent values between local regulation and WBG EHSs requirements.

There are no anticipated security incidents. However, equipment will need to be secured to mitigate losses by theft and vandalism.

ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

Land acquisition or physical displacement under Component 1 in the restoration of the Kapichira Dam is expected to be minimal. Proposed civil works are expected to take place within existing wayleaves and infrastructure footprint. Further, the size of the reservoir footprint will not change therefore there will be no physical displacement. Some land loss (temporary and permanent) is anticipated due to the need for quarry sites, borrow sites, new sediment deposit sites, construction material storage, and workers accommodation.

The transmission and distribution network has suffered damage in all regions, with the Southern Region being the worst hit. A total of 14 transmission lines (400kV, 132kV and 66kV) in 21 districts have been affected. Distribution (33kV and 11kV) infrastructure was also damaged including many distribution lines having failed due to multiple faults and that are in urgent need of repair. These includes steel towers, wooden poles and structures, transformers, conductors and insulators among others that are expected to be replaced in situ where possible. The damage caused by the tropical storm has been in various degrees including complete line sections and isolated structures. Further, damaged roads have prevented access to some areas e.g. in Kapichira road sections are washed away so of ferrying materials to the work site is a problem. Some areas are inaccessible such that line stringing has stalled and some areas are known to have been encroached upon with subsistence farming.

Further, temporary and permanent access roads may lead to loss of land, loss of other assets such as trees, fruit trees, and standing crops, or loss of livelihoods. Any redesigning of the lines or access roads will ensure to avoid residential structures therefore physical displacement is not expected.

An RPF will be developed as a disbursement condition for the project. The RPF will guide the preparation of any subsequent RPs. The RPF outline stakeholder consultations especially with the various communities that will be affected, guide entitlements to be compensated under the project; identify vulnerable groups impacted by the project; and grievance redress mechanism in alignment with the Stakeholder Engagement Plan (SEP). Livelihood restoration measures will also be stipulated where required.

ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

Risks of the project on natural resources and biodiversity are high if not mitigated; these include, not limited to, impacts on the biodiversity of the adjacent Majete Wildlife Reserve, the aquatic habitat and biota of the Shire River



system, and the Elephant Marsh Ramsar wetland located downstream, and the biodiversity and IUCN list endangered species these habitats support. Although not pristine, the area is in good condition and it is therefore necessary to minimize the footprint of the impact of project activities in and near these critical habitats. The Biodiversity Management Plans will describe, using the mitigation hierarchy, how these various impacts will be avoided, minimized and mitigated, or offset and/or compensated. A Biodiversity Management Plan (BMP) reviewed by the Bank will be developed for each Component of the project to address the appropriate biodiversity risk and impacts and applicable mitigation actions of each component.

Under Component 1, through studies for Mpatamanaga Hydropower Plant, this reach of the Shire River has identified IUCN listed species including fifteen (15) Endangered, (EN), twenty-one (21) Vulnerable (VU), and nine (9) Critically Endangered (CR) species. The Ramsar listed Elephant Marsh wetland, a high biodiverse habitat, is located downstream of the project area. The Site supports over 20 000 waterbirds, including breeding sites for various IUCN listed threatened bird species, and habitat for IUCN listed fauna species. Majete Wildlife Reserve is a National declared Protected Area and provides habitat to various IUCN endangered species including, lion, leopard, cheetah, rhino, wild dog, amongst others.

The spillage of chemicals or construction materials into the river and/or washed downstream in the river will have a detrimental impact on the habitat of both the fish/aquatic habitat and the wetland systems. Noise disturbance at the project area, such as blasting and heavy machinery will have an impact on the biodiversity of the Majete Wildlife Reserve. Furthermore, it will be important to maintain the seasonal hydrological regime through the project site to the downstream areas during the project lifecycle, especially during construction activities. Currently an allocation for environmental flows at Kapichira is provided but this is not verified nor monitored. The BMP should include verification of the environmental flow allocation.

Excavation of sediment from the reservoir will need to be stockpiled in environmentally and socially secure areas to prevent further sediment-loading of the downstream river system, and to prevent mudslides impacting adjacent biodiverse and community areas. The BMP will include requirements for implementing a fauna and flora rescue program prior to any construction commences, in case of protected /endangered /vulnerable species are encountered either at project areas or at the ancillary sites (for example the new sediment disposal dam, quarries, access roads, etc.). The BMP will also include measures to mitigate/deter wildlife crime and poaching by staff or by access to project areas through and adjacent to Majete Wildlife Reserve and Kapichira EGENCO property. The BMP will also include procedures for contractors to clean and dis-infect their equipment prior to entry and exit from the project areas, to prevent the spread of vector illnesses and spread of alien and invasive species, including ticks and water weed.

In keeping with the approach in the original construction of Kapichira where reduction in loss of trees was achieved by deliberately following the principle of general minimum-impact construction plan, where trees that had to be removed were cut instead of being bulldozed. While trees are expected to be removed with the repair works at the reservoir and dam, this principle should still be applied for new ancillary sites, where it is unavoidable to remove trees, after trees and vegetation has been removed to alternative sites. For each tree cut down or removed must be replanted with minimum 20 new trees of indigenous and endemic species.



Under Component 2, although the distribution and transmission lines are being replaced along their existing and previous network footprint, and impact to migratory routes has already taken place. The project area in this component is still located within the flight routes of birds and bats, including IUCN listed species.

The BMP for this work will consider the avifauna of these areas in line with ESF requirements and applicable ESHGs. The designs and installations will consider mitigation measures to reduce avian and bat collisions and electrocutions, for example those included in the WBG EHS Guidelines for Electric Power Transmission and Distribution including installing elevated perches, insulating jumper loops, placing obstructive perch deterrents, changing the location of conductors, and / or using raptor hoods, etc.

Due to the emergency nature of the project, the project activities will be repairing already existing activities within their existing footprint of impact, and very limited time frame, for the collection of baseline information.

Due to climate change and associated hydrological flow variation coupled with development of additional abstraction works, and the need to potentially flush sediment from the rehabilitated dam to sustain the reservoir capacity and generation capacity of the HPP, and the need to meet Environmental Flow Requirements (EFR) at Kapichira Falls, requires the verification of the hydrological availability both for operations and for meeting the EFR and adjust the current lump EFR allocation to seasonal requirements.

ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

This ESS is not applicable in Malawi as there are no groups that meet the criteria for ESS7 in Malawi.

ESS8 Cultural Heritage

In Component 1, as a result of the breach of the fuse-plug of the Kapichira dam and subsequent erosive scour of the area, fossilized plants and materials have been exposed. These will be assessed by the National Department of Archaeology and Antiquities for preservation prior to any site work taking place in this area. The Assessment should consider all project sites, ancillary works and associated facilities under Component 1, prioritising the exposed fuse plug areas and immediate downstream area. Based on the findings of this assessment a Cultural Heritage Management Plan (CHMP) may need to be developed. Should it be required, the CHMP will form part of the Component 1 ESIA and will align with the ESF requirements.

Furthermore, excavation and site clearing activities and movement of earth in the project areas in both components may further expose natural resources and cultural heritage and therefore Chance Finds procedures must be included in the ESMPs of both project components. Training will be provided to field technical staff, including through Toolbox talks on the Chance finds procedures.

ESS9 Financial Intermediaries

This ESS is not relevant as no financial intermediaries will be used.

B.3 Other Relevant Project Risks

Climate Change



C. Legal Operational Policies that Apply

OP 7.50 Projects on International Waterways	Yes
Exception memo issued.	
OP 7.60 Projects in Disputed Areas	No

B.3. Reliance on Borrower’s policy, legal and institutional framework, relevant to the Project risks and impacts

Is this project being prepared for use of Borrower Framework? No

Areas where “Use of Borrower Framework” is being considered:
ESF requirements will apply.

IV. CONTACT POINTS

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Implementing Agency(ies)

Implementing Agency: Electricity Supply Corporation of Malawi, Ltd.
Implementing Agency: Electricity Generation Company (Malawi) Ltd.

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VI. APPROVAL

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Public Disclosure



Practice Manager (ENR/Social)

Noreen Beg Cleared on 19-May-2022 at 18:20:2 GMT-04:00

Safeguards Advisor ESSA

Peter Leonard (SAESSA) Concurred on 20-May-2022 at 08:20:12 GMT-04:00